R842-09 ERIC REPORT RESUME

ED 010 181 1-30-67 08 (REV)

A STUDY IN COMMUNICATION BETWEEN HIGH SCHOOL TEACHERS OF VOCATIONAL AGRICULTURE AND SOCIO-ECONOMICALLY DISADVANTAGED YOUTH BY THE USE OF SEMANTIC DIFFERENTIAL.

MCMILLION, MARTIN B.
GFF21301 UNIVERSITY OF ILLINOIS, URBANA

ERD-460
BR-5-1215
-AUG-66 OEG-6-85-086
EDRS PRICE MF-$0.27 HC-$5.92 148P.

*VOCATIONAL EDUCATION, SECONDARY SCHOOL STUDENTS, *AGRICULTURE, *RURAL YOUTH, SOCIOECONOMIC STATUS, *DISADVANTAGED YOUTH, *COMMUNICATION (THOUGHT TRANSFER), URBANA, ILLINOIS

THE STUDY ATTEMPTED (1) TO DETERMINE WHETHER OR NOT SOCIOECONOMICALLY DISADVANTAGED PUPILS AND TWO OTHER SOCIOECONOMIC GROUPS OF PUPILS IN SECONDARY SCHOOL GRADES PLACED A SIGNIFICANTLY DIFFERENT CONNOTATIVE MEANING ON SELECTED WORDS AND PHRASES WHICH ARE OF IMPORTANCE TO VOCATIONAL EDUCATION IN AGRICULTURE, (2) TO DETERMINE WHETHER OR NOT THE CONNOTATIVE MEANING WHICH THE AGRICULTURE TEACHERS OF THESE PUPILS PLACED ON THE WORDS AND PHRASES WAS MORE LIKE THAT OF THE HIGHER SOCIOECONOMIC PUPILS THAN THAT OF THE LOWER SOCIOECONOMIC PUPILS, AND (3) TO DETERMINE THE EXTENT TO WHICH TEACHERS RECOGNIZE ANY DIFFERENCE IN CONNOTATIVE MEANING FOR SELECTED WORDS AND PHRASES WHICH MAY EXIST AMONG THE VARIOUS CLASSIFICATIONS OF PUPILS. A STRATIFIED RANDOM SAMPLE OF 240 HIGH SCHOOL STUDENTS COMPLETED A SEMANTIC DIFFERENTIAL INSTRUMENT. MULTIVARIATE ANALYSIS OF VARIANCE WAS THE MAJOR STATISTICAL PROCEDURE EMPLOYED IN THE STUDY. AMONG OTHER RECOMMENDATIONS, IT WAS SUGGESTED THAT LOW-STATUS PUPILS VALUE LEADERSHIP MORE HIGHLY THAN DO HIGH-STATUS PUPILS AND SHOULD BE AFFORDED AN OPPORTUNITY TO ASSUME POSITIONS OF LEADERSHIP. (JM)

ED010181

5-1215
(ERD-460)

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education
This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

A Study in Communication Between High School Teachers of Vocational Agriculture and Socio-Economically Disadvantaged Youth by the Use of the Semantic Differential

Martin B. McMillion

Office of Education Grant Number 6-85-086, The Vocational Education Act of 1963, P.L. 88-210, Section 4 (c)

The Project Reported Herein Was Supported by a Grant from the
U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
BUREAU OF RESEARCH
DIVISION OF ADULT AND VOCATIONAL RESEARCH

University of Illinois, August 1966

A STUDY IN COMMUNICATION BETWEEN HIGH SCHOOL TEACHERS OF VOCATIONAL AGRICULTURE AND SOCIO-ECONOMICALLY DISADVANTAGED YOUTH BY THE USE OF THE SEMANTIC DIFFERENTIAL

Lloyd J. Phipps, Project Director

Martin B. McMillion, Principal Investigator

Vocational and Technical Education Grant
Contract No. OE 6-85-086
Vocational Education Act of 1963, Section 4(c)

December 1, 1965 - August 31, 1966

Agricultural Education Division
Vocational and Technical Education Department
University of Illinois
Urbana, Illinois

ABSTRACT

OE 6-85-086

A STUDY IN COMMUNICATION BETWEEN HIGH SCHOOL TEACHERS OF VOCATIONAL AGRICULTURE AND SOCIO-ECONOMICALLY DISADVANTAGED YOUTH BY THE USE OF THE SEMANTIC DIFFERENTIAL

Martin B. McMillion
University of Illinois
Urbana, Illinois

December 1, 1965-August 31, 1966

Purpose

The purposes of the study were to (1) determine whether or not socio-economically disadvantaged pupils and two other socio-economic groups of pupils in each of the four secondary school grades placed a significantly different connotative meaning on selected words and phrases which are of importance to vocational education in agriculture, (2) determine whether or not the connotative meaning the agriculture teachers of these pupils placed on the words and phrases was more like that of the higher socio-economic classifications of pupils than the socio-economically disadvantaged classification of pupils, and (3) determine the extent to which teachers recognize any difference in connotative meaning for selected words and phrases which may exist among the various classifications of pupils.

Procedure

Pupils studying vocational agriculture in twenty-one Illinois high schools were classified into three socio-economic groups in each of the four high school grades by use of the Sims SCI Occupational Rating Scale. A stratified random sample of 240 pupils composed of twenty pupils from each of the twelve stratifications of pupils and twenty-one teachers of agriculture completed a semantic differential instrument under the

supervision of the researcher. Respondents indicated the connotative meaning they placed on the words and phrases by judging them against Likert-type scales consisting of a good-bad continuum, an important-unimportant continuum, and other similar continuum scales bound by adjectives which were opposite in meaning. Multivariate analysis of variance was the major statistical procedure employed in the study. The hypotheses were tested at the .05 level of significance.

Findings

The findings concerning connotative meaning were as follows:

1. The socio-economic level of pupils was related to the connotative meaning vocational agriculture pupils placed on the words "leadership" and "cooperation." The word "leadership" was valued more highly by the socio-economically disadvantaged group of pupils than by the upper socio-economic group of pupils. The word "cooperation" was valued more highly by the middle socio-economic group of pupils than by the highest socio-economic group of pupils.
2. The grade level of secondary school pupils studying vocational agriculture was not related to the connotative meaning placed on any of the eleven words or phrases studied.
3. Teachers of agriculture predicted the meaning which their pupils placed on the eleven words and phrases studied equally well for the twelve subgroups of pupils consisting of three socio-economic levels of pupils in each of the four secondary school grades.
4. Teachers of agriculture were more in agreement with the connotative meaning which junior and senior vocational agriculture pupils placed on the words and phrases studied than they were

with the meaning freshmen and sophomore pupils placed on the same words and phrases.

5. Teachers consistently underestimated the value which all vocational agriculture pupils as a group placed upon the words and phrases being studied.

Recommendations

Any generalizations from the findings of this study must be limited to the type of population used for the study. Where such conditions prevail, the following recommendations seem feasible.

1. Low status pupils, the socio-economically disadvantaged, value leadership more highly than do high status pupils and should be afforded an opportunity to assume positions of leadership. Teachers of vocational agriculture should attempt to influence the present leaders of the FFA organization to permit and encourage pupils having low socio-economic status to assume positions of leadership as regular officers or as chairmen of important committees in the FFA. Suggested committees are the entertainment committee and the banquet committee where opportunities for social improvement and recognition exist.

The teacher should encourage the use of nominating committees for the selection of new officers in the FFA organization, and he should encourage the nominating committee to select candidates from the low socio-economic groups as well as from the upper socio-economic groups. Attempts should be made to prevent every office in the FFA from being filled by a clique of pupils from the higher status families. The importance of willingness of pupils and the ability of pupils to perform duties required in a position of leadership should be explained by teachers to the present leaders of the FFA organization. If possible, social barriers or lack of popularity on the part of disadvantaged pupils should not be permitted to be insurmountable obstacles to attaining positions of leadership.

2. Teachers of agriculture should realize that the literature pertaining to the attitudes and values of low status pupils in the cities and elsewhere do not necessarily apply to pupils in rural areas. If disadvantaged youth were all hostile and rebellious, one would expect the low status group of pupils to place little value on "cooperation." The lowest socio-economic group and the middle socio-economic group both placed a higher value upon the word "cooperation" than did the highest socio-economic group. One reason for the relatively low value placed on the word "cooperation" by the highest socio-economic group could be the sense of self-sufficiency of those having the higher socio-economic status. The findings seem to imply that the highest socio-economic group of pupils should be taught to value cooperation more than they value it now.

PREFACE

This study, using the semantic differential technique to assess attitudes and values, pioneers its use as a research tool in communication research in the study of disadvantaged youth in vocational and technical education. The findings of this study indicated that it is a useful research tool in vocational and technical education. Research workers investigating vocational and technical education problems are advised to consider the possibility of using the semantic differential technique as a possible tool in their research.

The findings of this study indicated that there were differences in meaning placed on words by pupils in the various socio-economic strata. Educators should be aware of these differences and further research is needed to indicate the implications of these differences and to indicate program and teaching procedure changes that will compensate for these differences in meaning of words used in vocational education and technical education by the pupils from the various socio-economic strata of our society.

The findings further clearly indicated that the communication between teachers and pupils improved as the pupils obtained more contact hours or instruction in vocational and technical education. Teachers of vocational and technical education courses need to understand that they are less effective in communicating with beginning and younger pupils than they are with older and more advanced pupils. Both researchers and teachers need to devise ways and means of improving the communication process with young and inexperienced pupils in vocational and technical education.

Lloyd J. Phipps
Project Director

ACKNOWLEDGMENTS

The investigator wishes to acknowledge the advice, assistance, and cooperation of those who made this study possible. Special appreciation is given to the project director, Professor Lloyd J. Phipps. Gratitude is expressed to the project consultants who were as follows: Glenn Blair, Howard Bobren, Gerald Fuller, Alfred Krebs, John Palmer, Ray Simpson, and Maurice Tatsuoka.

Sincere thanks go to the twenty-one teachers of agriculture in Illinois who assisted in the collection of the data. Appreciation is given to Pamela Messer, for clerical assistance, and to James Kraatz, Jack McManus, and Larry Mather for assistance in computer programming.

The investigator wishes to express sincere appreciation to Frieda Denenmark and Otto Legg of the United States Office of Education for serving as coordinators for the project.

Martin B. McMillion
Principal Investigator

TABLE OF CONTENTS

CHAPTER Page

I. INTRODUCTION. 1

Statement of the Problem. 2
Significance of the Problem 2
Definition of Terms 3
Objectives and Hypotheses 5
Research Related to the Problem 9

II. PROCEDURE 13

Major Tasks in Conducting the Study 13
Population and Sample 13
Data and Instrumentation. 17
Statistical Procedure 25

III. THE PRESENTATION AND ANALYSIS OF DATA. 28

The Results of Tests of Hypothesis One. 28
The Results of Tests of Hypothesis Two. 36
The Results of Tests of Hypothesis Three. 57

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS. 76

Restatement of the Problem. 76
Summary of Procedure Used 76
Hypothesis One Conclusions. 78
Hypothesis Two Conclusions. 80
Hypothesis Three Conclusions. 81
Summary of Conclusions. 82
Recommendations 84
Limitations of the Study. 86
Suggestions for Further Research. 87

BIBLIOGRAPHY 88

APPENDICES 92

LIST OF TABLES

TABLE Page

1 THE SOCIAL CLASS LEVELS USED BY SIMS AND THE NUMBER OF PUPILS TESTED WHO APPEARED IN EACH CLASS. 17

2 F-RATIOS OBTAINED BY A TWO-WAY MULTIVARIATE ANALYSIS OF VARIANCE FOR TWELVE GROUPS OF PUPILS FOR ELEVEN STIMULUS CONCEPTS. 32

3 RESULTS OF A TWO-WAY MULTIVARIATE ANALYSIS OF VARIANCE OF THE DISCREPANCY BETWEEN PUPIL MEANING FOR THE STIMULUS CONCEPTS ON A SEMANTIC DIFFERENTIAL INSTRUMENT AND PREDICTED MEANING. 58

4 MEAN DISCREPANCY BY GRADE LEVEL AND SOCIO-ECONOMIC LEVEL ON A SEMANTIC DIFFERENTIAL INSTRUMENT BETWEEN SCORES INDICATING PUPIL MEANING AND SCORES INDICATING TEACHERS' PREDICTED MEANING FOR ALL PUPILS AND ALL STIMULUS CONCEPTS . . 59

5 MEAN SHIFT IN SCALE VALUE BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR TWELVE CLASSIFICATIONS OF PUPILS FOR ALL STIMULUS CONCEPTS AND ALL SCALES 72

6 MEAN SHIFT IN SCALE VALUE BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR PUPIL MEANING, TEACHER MEANING, AND PREDICTIONS OF PUPIL MEANING FOR EACH STIMULUS CONCEPT. 73

7 MEAN SHIFT IN SCALE VALUE BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR PUPIL MEANING, TEACHER MEANING, AND PREDICTIONS OF PUPIL MEANING FOR TEN BIPOLAR ADJECTIVES 74

8 MEAN SHIFT IN SCALE VALUE BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR TEACHER PREDICTIONS OF PUPIL MEANING FOR TWELVE CLASSIFICATIONS OF PUPILS 75

LIST OF FIGURES

Figure Page

1. The semantic differential instrument used in the study and a set of hypothetical data. 18

2. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores of pupils by socio-economic strata 29

3. Profiles for connotative meaning of the stimulus concept "cooperation", showing mean raw scores of pupils by socio-economic strata.. 31

4. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores of pupils in the lowest and highest of the socio-economic strata 34

5. Profiles for connotative meaning of the stimulus concept "cooperation", showing mean raw scores of pupils in the middle and highest of the socio-economic strata 35

6. Number of significant F-ratios for difference in connotative meaning between twelve pupil groups and the teacher group for eleven stimulus concepts. 37

7. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores for the middle socio-economic stratum of freshmen and the teacher group. . . 38

8. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores of the middle socio-economic stratum of sophomores and the teacher group. . 39

9. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores of the highest socio-economic stratum of sophomores and the teacher group... 40

10. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores of the middle socio-economic stratum of sophomores and the teacher group. . 41

11. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores of the highest socio-economic stratum of juniors and the teacher group . . . 42

12. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores of the lowest socio-economic stratum of seniors and the teacher group . . . 43

13. Profiles for connotative meaning of the stimulus concept "farming", showing mean raw scores of the lowest socio-economic stratum of sophomores and the teacher group. . 44

LIST OF FIGURES--Continued

Figure Page

14. Profiles for connotative meaning of the stimulus concept "farming", showing mean raw scores of the middle socio-economic stratum of sophomores and the teacher group. . 45

15. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores of the middle socio-economic stratum of freshmen and the teacher group 46

16. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores of the middle socio-economic stratum of juniors and the teacher group 47

17. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores of the highest socio-economic stratum of juniors and the teacher group 48

18. Profiles for connotative meaning of the stimulus concept "agricultural mechanics instruction", showing mean raw scores of the middle socio-economic stratum of sophomores and the teacher group 49

19. Profiles for connotative meaning of the stimulus concept "supervised farming program", showing mean raw scores of the middle socio-economic stratum of freshmen and the teacher group 50

20. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores of the lowest socio-economic stratum of freshmen and the teacher group 51

21. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores of the lowest socio-economic stratum of sophomores and the teacher group 52

22. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores of the middle socio-economic stratum of sophomores and the teacher group 53

23. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing mean raw scores of the middle socio-economic stratum of freshmen and the teacher group 54

LIST OF FIGURES--Continued

Figure Page

24. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing mean raw scores of the highest socio-economic stratum of freshmen and the teacher group 55

25. Profiles for connotative meaning of the stimulus concept "teacher of agriculture", showing mean raw scores of the highest socio-economic stratum of sophomores and the teacher group 56

26. Profiles for connotative meaning of the stimulus concept "learning by doing", showing the scores of all pupils and the scores predicted for them by their teachers 60

27. Profiles for connotative meaning of the stimulus concept "leadership", showing the scores of all pupils and the scores predicted for them by their teachers 61

28. Profiles for connotative meaning of the stimulus concept "cooperation", showing the scores of all pupils and the scores predicted for them by their teachers 62

29. Profiles for connotative meaning of the stimulus concept "Future Farmers of America", showing the scores of all pupils and the scores predicted for them by their teachers. . 63

30. Profiles for connotative meaning of the stimulus concept "farming", showing the scores of all pupils and the scores predicted for them by their teachers 64

31. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing the scores of all pupils and the scores predicted for them by their teachers 65

32. Profiles for connotative meaning of the stimulus concept "agricultural mechanics instruction", showing the scores of all pupils and the scores predicted for them by their teachers 66

33. Profiles for connotative meaning of the stimulus concept "supervised farming program", showing the scores of all pupils and the scores predicted for them by their teachers. . 67

34. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing the scores of all pupils and the scores predicted for them by their teachers. . 68

35. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing the scores of all pupils and the scores predicted for them by their teachers 69

36. Profiles for connotative meaning of the stimulus concept "teacher of agriculture", showing the scores of all pupils and the scores predicted for them by their teachers 70

CHAPTER I

INTRODUCTION

Communication is dependent upon the consistency between symbols presented by the communicator and the thoughts symbolized by the communicatee. The thoughts which word symbols call to mind are not uniform among individuals, nor can the thoughts be uniform. Past and present experiences cause a diversity of thoughts to be associated with a particular language symbol.

Communication by words can be improved by bringing about more uniform responses among individuals to a language symbol, and communication can also be improved by a better understanding by the communicator of the diversity of responses to a language symbol among individuals and groups of individuals. The latter possibility was the one employed in this study.

The term "connotative meaning" refers to the meaning which a language symbol brings to mind--feelings, attitudes, thoughts, and other psychological reactions. The problem was, then, to determine whether or not a certain pattern of connotative meaning of words was associated with individuals with one pattern of experiences but not with individuals with another experience background.

Youth having different socio-economic backgrounds are believed to be different in many aspects. One possible aspect of difference is the meaning (feelings, thoughts, attitudes, and interpretations) placed on words and phrases. Understanding and communication between pupils and teachers are somewhat limited, if words have different meanings for certain groups of pupils than they have for teachers.

Statement of the Problem

The first problem was to measure the existence of any difference in connotative meaning held for selected words and phrases by socio-economically disadvantaged pupils and other socio-economic groups in the four secondary school grades. The second problem was to measure the connotative meaning held for these selected words and phrases by selected teachers and to compare the meanings held by these teachers with the meanings attached to these selected words and phrases by the groups of pupils studied. The third problem was to ascertain the extent to which teachers recognize any difference in meaning for selected words and phrases which may exist among the various subgroups of pupils.

Significance of the Problem

Vocational teachers should be provided with information concerning the difference, if any, between the meaning of words and phrases to themselves and to the various socio-economic levels of youth which they serve. Information about such differences in meaning will be beneficial in improving understanding and communication between teachers and the pupils served by them. If the socio-economic position of a pupil is related to the connotative meaning he attaches to words, it is important that this relationship be discovered and studied.

The Vocational Education Act of 1963, The Elementary and Secondary Education Act of 1965, and other recent federal legislation provide a mandate from society for researchers to turn their energies upon the problems of the less advantaged groups in our society.

The method of measuring meaning called the semantic differential has been in extensive use for over a decade, but as yet has not been used to compare the connotative meaning of words among different socio-economic levels of pupils. Any effective means which will help to better understand the lower socio-economic groups should be utilized.

A knowledge of differences in meaning can improve communication, even though meaning for words remains unchanged. Attempts to reduce the diversity of meaning of word symbols among individuals must not be abandoned, however. When teachers know the meaning pupils place on certain crucial words and phrases, they will have a framework upon which to base attempts to change existing connotative meanings to meanings more conducive to a successful life.

Definition of Terms

Some of the terminology used in this study must be defined in order to prevent possible errors in interpretation and to make the study more easily understood. The terms and their definitions are given below.

Sims SCI Occupational Rating Scale - A method of appraising the socio-economic level of a pupil and his family. The scale is filled out by the pupils themselves. It contains listings of various occupations and the pupil is asked to rate the people engaged in these occupations as being higher, lower, or the same as he and his family. The pupil establishes himself somewhere along the continuum of occupations which extend from janitor to United States ambassador by rating people in the occupations.

Socio-economic Stratum I - This stratum of pupils is the lowest of the socio-economic classifications of pupils in the study. These pupils have SCI scores of twelve and below. They consider themselves to be the same as farm hands, factory workers, house-to-house brush salesmen, automobile mechanics, and telephone operators. This stratum of pupils is the socio-economically disadvantaged group.

Socio-economic Stratum II - This stratum of pupils is the middle group among the socio-economic classifications of pupils in the study. These pupils have SCI scores of thirteen through eighteen. They consider themselves to be the same as neighborhood grocery store owner-operators, railroad ticket agents, and bookkeepers for a store.

Socio-economic Stratum III - This stratum of pupils is the highest socio-economic classification of pupils in the study. These pupils have SCI scores of nineteen and above. Pupils in this stratum consider themselves to be the same as high school teachers, real estate salesmen, druggists, and large farm owner-operators.

SCI - Social Class Identification as determined by Sims SCI Occupational Rating Scale.

Disadvantaged Youth - Pupils who have Sims SCI scores which placed them in the lowest socio-economic stratum used in this study. A discussion of the home conditions of the pupils with their teachers of agriculture revealed that these pupils were the same kind of pupils termed economically disadvantaged youth in recent federal legislation. Pupils in this classification were mainly sons of farm hands and factory workers.

Stimulus Concept - A stimulus concept is the word or phrase for which meaning is measured.

Semantic Differential - The semantic differential is a paper and pencil technique of measuring connotative meaning in which a combination of association and scaling procedures are used.

Connotative Meaning - Connotative meaning refers to private associations which arise in connection with words through the learning history of the individual concerned.

Supervised Farming Program - Supervised farming program is one of the terms for which meaning is measured in this study. The term is applied to those agricultural activities and experiences of educational value conducted by pupils on a farm for which systematic instruction and supervision are provided.

FFA - FFA is an organization of pupils studying vocational agriculture. The organization is an integral part of the vocational agriculture program dedicated to the building of better citizens. The organization could well be called "Future Farmers and Agriculturalists" because membership is being opened to all pupils studying vocational agriculture whether or not their objective is to become established in farming or to use their knowledge and skills of plant and animal science and related mechanical knowledge and skills in occupations other than farming.

Non-farm Agricultural Occupation - A job other than farming which requires knowledge and skills in plant and animal science and related mechanical knowledge and skills.

Objectives and Hypotheses

The major objective was to ascertain whether or not a disparity in value and meaning of words and phrases which are of importance to vocational education in agriculture existed among the various socio-economic levels of pupils studying vocational agriculture in the secondary school grades, and whether or not a difference existed between the meaning groups of pupils and the group of teachers placed upon the words and phrases. Another objective was to study the degree to which teachers of agriculture are aware of this disparity in meaning placed upon certain selected words and phrases by pupils in three socio-economic classifications at four secondary school grade levels.

Research Hypotheses

Three research hypotheses were formulated concerning connotative meaning. Two of the hypotheses concerned differences in connotative meaning of words and phrases for groups of individuals. The third hypothesis concerned differences between actual and predicted connotative meaning.

Hypothesis one was formulated to answer the question, "Do significant differences in meaning placed upon words and phrases exist among groups of pupils stratified by socio-economic classifications and by secondary school grade level?"

Hypothesis two was formulated to answer the question regarding whether or not the meaning the teacher group placed on words and phrases are significantly different from that which the pupil group placed on these words and phrases.

Hypothesis three was formulated to answer the question, "Do connotative meanings of words and phrases predicted by teachers for their pupils differ significantly from the pupils' own connotative meanings when pupils are grouped by socio-economic level and by grade in secondary school?"

The three research hypotheses formulated for this study were as follows:

1. Vocational agriculture pupils at the lower end of the socio-economic continuum place a different meaning on certain words and phrases used in vocational agriculture than pupils in higher positions on the continuum, and pupils in the lower secondary school grades place a different meaning on these words and phrases than pupils in the higher secondary school grades.
2. Vocational agriculture pupils at the lower end of the socio-economic continuum in the ninth and tenth grades place a

different meaning upon certain words and phrases used in vocational agriculture than do teachers of agriculture.

3. Teachers of agriculture predict the connotative meaning of words and phrases for the lower socio-economic groups less accurately than they do the meanings of words and phrases for the higher socio-economic groups of pupils, and predictions of meaning by teachers are less accurate for pupils in the ninth grade than for pupils in the higher grades.

Rationale for the Hypotheses

The extent to which the learning-histories of individuals are different should be indicative of the differences in connotative meanings these individuals will place on words. The rationale for each hypothesis was predicated upon this fact. Pupils with lower socio-economic experiences will interpret words and phrases in different ways than will those with broader experiences; they will feel differently about the words and phrases. However, the learning-history of individuals concerning certain words and phrases may be very much the same.

Meanings placed upon words and phrases by pupils may be much the same when the experiences of the pupils with these words and phrases are obtained primarily in vocational agriculture classes. "Non-farm agricultural occupations" is a phrase which pupils have probably not heard until they enroll in vocational agriculture. Pupils with the same exposure to this phrase in classes of vocational agriculture would likely have similar meanings for the phrase. Words, such as "farming," have had an extended influence upon most pupils enrolled in vocational education courses in agriculture and the experiences with farming are much different for the pupils at the lower end of the socio-economic continuum than for the pupils at the upper end of the socio-economic continuum.

It would be expected that seniors would be more in agreement concerning the connotative meaning of words and phrases used frequently in vocational education courses in agriculture than would freshmen. An increased amount of time spent in vocational agriculture should cause the attitudes, values, and feelings of pupils toward words and phrases of importance to vocational agriculture to become more nearly alike.

Participation in extra-curricular activities is often associated with socio-economic status. This fact may indicate that the school organization associated with vocational agriculture (FFA) would have a different connotative meaning for the socio-economically disadvantaged group of pupils than for the higher socio-economic groups of pupils. However, this difference may not be obtained, because the FFA is not "extra-curricular" but is an integral part of the vocational agriculture curriculum and nearly all pupils studying vocational agriculture have experience with the FFA organization.

The teacher's understanding of the meaning his pupils place on words and phrases is expected to be better for the pupils whom he has known longest and the ones from backgrounds more like his own. Teachers of agriculture may be expected to predict the connotative meaning of words and phrases for their pupils with considerabe accuracy except for the freshmen and sophomores from the lower end of the socio-economic continuum. A fairly accurate prediction of connotative meaning is expected because of the close contact a teacher of agriculture has with his pupils. Classes in vocational agriculture are smaller than most academic, required classes; teachers visit the homes to supervise agricultural experiences; and teachers of agriculture work closely with pupils in many informal FFA activities.

Research Related to the Problem

Research having a bearing upon this study concerns both the technique of measuring meaning and differences in meaning of words and phrases among groups of individuals, whether or not meaning is called connotative meaning, values, attitudes, feelings or some other term. Literature concerning the measurement technique will be presented first.

Background of the Semantic Differential

The primary measuring instrument employed in this study was the semantic differential developed by Osgood, Suci and Tannembaum (27). The semantic differential measures the connotative meaning which stimulus concepts have for different individuals and groups of individuals. The semantic differential is a psychological mechanism--a technique or process--which provides an objective measure of connotative meaning. The stimulus concept for which meaning is being measured is associated with or judged against a good-bad continuum or another bipolar, adjective continuum usually presented as a seven-step scale. The degree of association between the stimulus word, the word for which meaning is being measured, and the adjectives at either end of the seven-step scale is indicated by the position of a check-mark placed on the scale. The semantic differential, when filled out by a respondent, generates a "profile" or "factor score" of his meaning for that particular stimulus concept.

The use of several different bipolar, adjectival scales yields a more accurate measure of connotative meaning. The scales must also represent each of the three relatively independent dimensions of meaning found by Osgood and Suci through factor analytic studies (27, p. 47).

Certain scales represent one aspect of meaning while other scales represent other aspects (dimensions) of meaning. Factor analysis of the results of a study (27, p. 47) involving association and scaling procedure (now known as the semantic differential) with several individuals, several wrods, and several bipolar adjectives revealed that the adjectives clustered into three relatively independent groups. An "evaluative" factor accounted for the greatest amounts of variance in meaning among the adjectives (68.55 percent of the common variance and thirty-four percent of the total variance), a "potency" factor accounted for fifteen percent, and an "activity" factor accounted for nearly thirteen percent of the common variance. The presence of three dimensions of meaning has been substantiated by other studies using the semantic differential, by different methods of factor analysis of the same basic data, and by use of descriptive scales generated in several different manners. A minimum number of these descriptive scales which best represent each of the factors (dimensions of meaning) may be selected for purposes of measuring connotative meaning.

Validity and Reliability of the Semantic Differential

Face validity was the original basis upon which the semantic differential was validated. An instrument has "face validity" to the extent that the distinctions it makes correspond with those which would be made by most observers without the aid of the instrument.

The primary face validation performed by Osgood and his associates (27, p. 109) was a study of political groupings in terms of an analysis of Adlai Stevenson, Robert Taft, and Dwight Eisenhower supporters. Individual supporters of various candidates were studied concerning their reactions to certain controversial symbols. Upon analysis, the results of the semantic differential were entirely consistent with those which would be expected by any competent, informed observers of the political scene. Osgood (27 and 29), Maclay and Ware (17), and Michon (20) reported studies of different cultures and different languages which reveal a marked similarity to the evaluation-activity-potency dimensions studied in the United States.

Studies Involving the Semantic Differential

Several other researchers have made use of the semantic differential in research, but only a few of their studies were closely related to the one being made by this researcher. Three related studies in which the semantic differential was used are described below.

Ware (42) found no relationship between diversity of an individual's semantic meaning spaces and intelligence or sex. Each group utilized the extremes on the scales equally. The diversity of meaning spaces rather than meaning itself was studied.

Maltz (18) studied the change of meaning of concepts with age and concluded a change in meaning of certain terms occurs between age nine and college age.

Rachel (31) applied the semantic differential to a study designed to measure the difference of meaning of personnel policy-statements for individuals at different work-levels and with different functions within an industrial organization. A "standard meaning" concerning a policy statement was obtained from the policy makers in the organization and was compared to the meanings placed on it by employees with other functions in the organization. The procedure used in the study was useful in the present study; however, the conclusions of the study were irrelevant to this study.

Research Regarding Attitudes and Values Using Other Research Methods

Thompson (40) compared the values held by freshmen and seniors with the values held by their vocational agriculture teachers. Values were measured by the "Differential Values Inventory" developed by Prince (30). Getzel's (10) traditional and emergent values were the bases for the inventory. A set of forced choice questions was used by the individuals studied to make choices between statements reflecting traditional and emergent values. The traditional values are oriented toward the following: (1) Puritan morality, (2) individualism, (3) work-success ethic, and (4) future-time orientation. Emergent values are oriented toward (1) relativistic moral attitudes, (2) conformity, (3) sociability, and (4) present-time orientation. The study showed that personal values of seniors were more like the traditional values of their teachers than were the values of freshmen. The similarity of values between seniors and their teachers could be explained by the longer period of close contact, age alone, or a possibility that only pupils whose values are similar to those of their vocational agriculture teacher continue in the study of agriculture. Sophomores and juniors were not included in the study. Perhaps the study should have included pupils in all four secondary school grades and should have placed emphasis on a comparison of pupils who were within the age of mandatory school attendance.

Hierenymus (12) sought to determine the nature of differences of pupils representing different socio-economic groups in their social and economic expectations and differences in their attitude toward education. A modified Sims SCI Occupational Rating Scale was used to define the socio-economic groups. The study showed that high levels of aspiration and positive attitudes toward school were more frequently encountered in children from the middle and upper socio-economic groups than in children from the lower socio-economic groups.

CHAPTER II

PROCEDURE

Major Tasks in Conducting the Study

The major tasks in conducting the study were as follows:

1. Stratification of pupils into twelve subgroups consisting of three socio-economic strata for each of four secondary school grade levels.
2. Selection of a random sample of pupils from each subgroup.
3. Response of teachers and all subgroups of pupils to the semantic differential instrument.
4. Analysis of responses to determine difference in connotative meaning among pupil groups.
5. Analysis of responses to determine the difference in teacher responses and responses by groups of pupils.
6. Prediction by the teachers of the pupil responses to the semantic differential instrument.
7. Analysis of the accuracy of predictions made by teachers concerning the connotative meaning attached to certain words and phrases by the various subgroups of their pupils.
8. Readministration of all three forms of the semantic differential instrument to a portion of the sample.
9. Analysis of the retest data to determine its reliability.

Population and Sample

The teachers of vocational agriculture and their pupils in vocational agriculture in twenty-one schools, located in a contiguous geographic area having its center in Champaign County, Illinois, composed the population of teachers and pupils. In the contiguous geographic area studied, the schools having teachers of agriculture with less than one-year tenure were excluded from the study because the amount of teacher influence on their pupils would have been somewhat limited and the teachers would have had less basis for predicting the meaning their pupils would place on words. The population was limited to one geographic area in order to hold influences on word meaning due to geographic area as constant as possible.

The population of pupils was restricted to male pupils. The population of pupils was also restricted in such a way that grade in school was nearly synonymous with the years the pupil had studied vocational agriculture. Freshmen and sophomore pupils included in the study must have started in vocational agriculture as ninth graders. Junior and senior pupils included in the study could have started in vocational agriculture in the freshman or sophomore year of high school. All freshmen were first year vocational agriculture pupils, all sophomore pupils were second-year vocational agriculture pupils; however, eight of the sixty junior pupils were second-year vocational agriculture pupils and eleven of the sixty senior pupils were third-year vocational agriculture pupils.

The particular contiguous geographic area was chosen primarily because the data could be collected in a short span of time, thus reducing the actual change in connotative meaning which could take place during the conduct of the study. Also, the region of Illinois having the highest percent of disadvantaged youth had to be eliminated because the vocational agriculture teachers and their pupils were engaged in a research project which could possibly have confounded the results of this study. It was felt that even though the number of pupils classified as socio-economically disadvantaged were fewer in number in the location selected for this study, a sufficient number could be found for the sample in twenty to twenty-five high schools. The planned procedure was to use only twenty schools if enough pupils were identified in each subgroup; otherwise, additional schools were to be included in the order of their proximity to the center of Champaign County, Illinois. It was necessary to determine the socio-economic level of pupils in twenty-one schools offering vocational agriculture before enough pupils were identified to provide a sample of twenty pupils in each of the twelve subgroups, three socio-economic strata for each of four secondary school grade levels.

Socio-economic stratification. Methods of socio-economic stratification as extensive as those used by Warner (43), Bendix (3), and Hollingshead (13) were eliminated in favor of a method which could be accomplished with greater ease. Socio-economic stratification was accomplished by using the Sims SCI (Social Class Identification) Occupational Rating Scale. The researcher and the teacher of agriculture in each of the twenty-one schools in which the study was conducted discussed each pupil's socio-economic position, as determined by the Sims instrument. The purpose of discussing the socio-economic position of the pupils was to determine the validity of the scores obtained through the use of the Sims instrument. The aspects of the pupil's family background considered in this discussion were parental occupations, amount of family income, source of income, the style of life of the family, type of dwelling, stability of family, and size of family. A teacher of agriculture is well qualified to provide information concerning the family situation of his pupils, because he works closely with the families of his pupils while supervising their agricultural experience programs.

If the SCI score for a pupil was seriously questioned, the pupil was eliminated from the study. Elimination of those pupils whose socio-economic level, as determined by the Sims test was questionable, was chosen over reclassification of the socio-economic level of the pupils because it was felt that the chances of introducing bias were less.

The SCI scores obtained for the pupils studying vocational agriculture were normally distributed about the category which Sims calls the middle-working class. Pupils having a SCI score which would place them above the "middle class" apparently were either not enrolled in the schools in which the study was conducted or were enrolled but did not study vocational agriculture.

The Sims SCI Occupational Rating Scale produces scores which are usually divided to form seven socio-economic groups. The distribution of scores as determined by the maker of the test was such that it would probably have been necessary to canvass the entire enrollment of pupils in vocational agriculture in the State of Illinois in order to obtain twenty pupils in the lowest socio-economic level in each of the four secondary school grade levels; therefore, the two lowest socio-economic levels on the Sims classification were combined into one socio-economic level for the purposes of this study. The top four socio-economic levels on the Sims classification were compressed into one group for the same reason. Thus, only three socio-economic stratifications were used. The class levels used by Sims and the number of pupils in this study who were classified in each appear in Table 1.

No pupils in the universe population for the study had SCI scores which would place them in the two top socio-economic levels as classified by the Sims instrument; however, ten pupils in the total population had scores which would place them toward the bottom of the upper middle class. Four of these ten pupils appeared in the sample.

TABLE 1

THE SOCIAL CLASS LEVELS USED BY SIMS AND THE NUMBER OF PUPILS TESTED WHO APPEARED IN EACH CLASS

SCI SCORE RANGE	SOCIAL CLASS LEVEL	NUMBER OF STUDENTS
1 - 6	Lower-Working	28
7 - 12	Working	129
13 - 18	Middle-Working	473
19 - 24	Middle	128
25 - 30	Upper-Middle	10
31 - 36	Upper	0
37 - 42	Upper-Upper	0

Data and Instrumentation

The instrument used to measure the connotative meaning of the eleven stimulus concepts was a semantic differential instrument. The semantic differential instrument used in this study consisted of ten, seven-step scales bound by appropriate bipolar adjectives. Six of the scales utilized bipolar adjectives which represented the evaluation dimension of meaning; two scales utilized bipolar adjectives which represented the activity dimension, and two scales utilized bipolar adjectives which represented the potency dimension of meaning. The number of scales representing each dimension of meaning was roughly proportionate to the amount of common variance in meaning that each dimension accounted for in the factor analytic study which established the three dimensions of meaning (27, p. 37). Each individual in the study marked the ten scales for each of the eleven stimulus concepts studied. An example of the stimulus concept "non-farm agricultural occupation" appears in Figure 1.

A set of hypothetical data is used in Figure 1 to illustrate how the responses of one individual to one stimulus concept appeared. This respondent judged the stimulus concept "non-farm agricultural occupation" on the ten scales.

Non-farm Agricultural Occupation

1. **unimportant:_____:_____:_____:_____:_____:__✓__:_____:important**
2. **meaningful:_____:_____:_____:__✓__:_____:_____:_____:unmeaningful**
3. **bad:_____:_____:_____:_____:_____:_____:__✓__:good**
4. **successful:_____:_____:__✓__:_____:_____:_____:_____:unsuccessful**
5. **pleasant:_____:_____:__✓__:_____:_____:_____:_____:unpleasant**
6. **wise:_____:_____:_____:__✓__:_____:_____:_____:unwise**
7. **strong:_____:_____:__✓__:_____:_____:_____:_____:weak**
8. **hard:_____:_____:_____:_____:_____:__✓__:_____:soft**
9. **active:_____:_____:_____:__✓__:_____:_____:_____:passive**
10. **slow:_____:__✓__:_____:_____:_____:_____:_____:fast**

Figure 1. The semantic differential instrument used in the study and a set of hypothetical data*

***The adjective having the highest scale value appears on the left on all the scales except one, three, and ten.**

Note: Digits were assigned for computation purposes as follows:

bad:___:___:___:___:___:___:___:good
1 2 3 4 5 6 7

The raw data obtained were a collection of check-marks on the seven-point scales as illustrated in Figure 1. To each of the seven positions on the scale a digit was assigned. The set of digits from one to seven was used. A person's raw score on an item was the digit corresponding to the scale position he checked.

Selection of Words to Study

The primary focus of the study was on individuals and the words studied were of secondary importance. The emphasis was on whether or not different individuals place the same meaning on a word rather than whether or not different words have a similar meaning for the same individual.

Rationale for choice of words to be rated. The objectives of this study concerned the measurement and comparison of meaning of stimulus words to individuals. In order to measure meaning, some words had to be used. What these words were was of secondary importance to accomplishing the general objectives of the study. The general objectives could be attained by using words having to do with home and family; church, religion, and God; or some other words. A group of words and phrases which are useful in conveying the meaning and scope of vocational education in agriculture were selected. By using words and phrases having to do with vocational agriculture, much additional information of practical importance to vocational education in agriculture could be obtained. An attempt was made to select a group of words and phrases for use which most completely describe the nature and scope of vocational agriculture.

Procedure for selecting stimulus concepts. The rationale for selecting a group of words and phrases which best describe the nature and scope of vocational agriculture appears under another heading in this chapter.

The original list of words and phrases was taken from handbooks prepared by teachers of agriculture for the purpose of describing the vocational agriculture program to beginning and prospective pupils. Fifteen such handbooks were searched for nouns and noun phrases. The forty-seven nouns and noun phrases appearing most frequently in the handbooks were placed on 3 x 5 cards and four full-time staff members in agricultural education at the University of Illinois ranked them by using the Q-sort technique. The criterion on which the cards were sorted was the value of the words in portraying a substantial amount of meaning regarding the vocational agriculture program. The raters were told that the researcher wanted to obtain approximately twelve nouns and noun phrases which best portrayed the meaning of the high school vocational agriculture program.

The words and phrases were in one group when the staff sorted them; however, these words and phrases had been previously classified into three categories by the reseacher. Category I contained words having to do with adult education in agriculture. Category II contained value loaded words such as thrift, scholarship, and cooperation. Category III contained all the words which did not belong in Category I and II. All stimulus concepts (words or phrases) relating to adult education were ruled out when the decision was made to study secondary school youth. Three stimulus concepts which ranked highest in Category II were selected for study.

The three highest ranked stimulus concepts in Category II were (1) learning by doing, (2) leadership, and (3) cooperation. The eight stimulus concepts which ranked highest in Category III in rank order were (1) Future Farmers of America, (2) farming, (3) vocational agriculture, (4) farm mechanics instruction, (5) supervised farming program, (6) non-farm agricultural occupation, (7) on-farm instruction, and (8) teacher of agriculture.

Selection of Bipolar Adjectives for the Scales

The bipolar adjectives used in this study were taken from among those recommended by the originators (27) of the semantic differential technique. The adjectives were selected on the purity of their loadings for the dimension of meaning they represent and their appropriateness to the words and phrases being rated. Ten pairs of bipolar adjectives were selected. Six pairs of adjectives were selected for the evaluative dimension; two pairs were selected for the potency dimension, and two pairs of adjectives were selected for the activity dimension of connotative meaning. Osgood had previously identified these dimensions of connotative meaning in several factor analyses of some fifty to seventy-five pairs of bipolar adjectives. The ten pairs of bipolar adjectives originally selected for use in this study were approved as being appropriate by Professor Howard Bobren, an associate of Osgood at the University of Illinois Institute of Communication Research.

Two of the adjectives used were not identical to those factor analyzed by Osgood (27, p. 47). The word "unwise" was substituted for "foolish" and the word "unmeaningful" was substituted for "meaningless." The substitution was felt to be necessary in order to provide scales which were more adaptable to differentiation of meaning by the pupils and teachers using the instrument. The adjective "foolish" appears to be a more negative word than "unwise," and "meaningless" more negative than "unmeaningful." Use of the more negative terms did not seem appropriate when the adjectives were to be used to differentiate the meaning of words associated with a program of studies elected by the pupils being studied. Highly negative skewed distributions of check-marks were expected for the sample of pupils and teachers to be studied and it was thought that the use of "foolish" and "meaningless" would further reduce the ability of the scales to discriminate.

The bipolar adjectives used and the dimensions of connotative meaning which they represent were as follows:

Evaluative:	Important-unimportant, meaningful-unmeaningful, good-bad, successful-unsuccessful, pleasant-unpleasant, and wise-unwise.
Potency:	Strong-weak and hard-soft.
Activity:	Active-passive and fast-slow.

Six bipolar adjectives were chosen to represent the evaluative dimension of meaning. Two were chosen to represent the potency dimension of meaning, and two were also chosen to represent the activity dimension. The reason for selecting fewer adjectives to represent the activity and potency dimensions than were selected to represent the evaluative dimension was that fewer of the bipolar adjectives factor analyzed by Osgood (27, p. 47) had high loadings for these dimensions.

Once the bipolar adjectives had been selected for this study, the dimensions of meaning were ignored until after the analysis was completed. Ordinarily the raw data used in studies of this type are the mean scale values for each dimension of meaning. In this study, each of the ten bipolar descriptive scale values was analyzed as a separate variable instead of analyzing the three variables obtained by collapsing all evaluative scales into one mean scale value and all potency and activity scales into two other mean scale values. Using each scale as a separate variable should make the findings of the study more meaningful.

Procedure Used in Administering the Instruments

Three of the instruments used were completed during school hours in a classroom setting. Two of these instruments were completed by pupils and one was completed by the teachers. The instruments were (1) the Sims SCI Occupational Rating Scale, (2) the pupil form of the semantic differential instrument, and (3) the teacher form of the semantic differential instrument. A fourth instrument, the prediction form of the semantic differential instrument, was mailed to the teachers a few weeks later after the pupils in all the schools had been classified into socioeconomic groups and the sample of pupils had been drawn.

Sims SCI Occupational Rating Scale. All pupils enrolled in vocational agriculture and present on the day of the researcher's visit to a school completed the Sims instrument during their regular class period in vocational agriculture. Those absentees who were considered to be potential drop-outs were tested by the teacher at a later date. Other absentees were not tested. Pupils tested were led to believe that the occupational rating scale was a part of another study having to do with occupational preference of pupils. The directions used in administering the Sims instrument appears in Appendix A.

Pupil and teacher forms of the semantic differential instrument. Immediately after each classroom group had completed the Sims instrument, the semantic differential instrument was administered to all pupils in the class. All pupils in each class completed the semantic differential instrument, but only the instruments of those pupils whose names later appeared in the sample were analyzed. The teacher of agriculture completed the teacher form of the semantic differential instrument concurrently with the pupils in the first vocational agriculture class tested in a school. Teachers and pupils received identical and simultaneous instructions regarding the completion of the instrument.

The researcher assured himself that the pupils recognized the stimulus concepts and that they were familiar with the bipolar adjectives being used. Special care was taken to see that the pupils were familiar with the terms "active" and "passive" and that they used "hard-soft" to mean a degree of density rather than a degree of difficulty. Verbal instructions used in administering the semantic differential instruments to pupils and teachers appear in Appendix B. The teacher form of the semantic differential instrument contained the same directions as the form completed by the pupils, but it had a slightly different written introduction. A plea was made in the written instructions to the pupils to give a true expression of what the stimulus concepts meant to them. This request was not felt to be necessary on the teacher form of the instrument. Another reason for the different introduction for pupils and teachers was that the primary purpose for collecting pupil data was to see whether or not pupil groups were different from each other. The primary reason for collecting teacher data was to see whether or not the teacher group was different from the pupil groups regarding the meanings they attached to the stimulus concepts being studied. The teacher form of the semantic differential instrument may be found in Appendix C.

Prediction form of the semantic differential instrument. Teachers were asked to mark the semantic differential instruments as they thought their pupils had marked them. The prediction forms were mailed to the teachers shortly after the researcher had obtained the information required on the first three instruments in the twenty-one schools included in the study. The prediction form of the semantic differential instrument appears in Appendix D.

Procedure Used in Obtaining Reliability Data

All three forms of the semantic differential instrument were readministered to the pupils in one school to determine the reliability of the semantic differential data. Only one school was used for retesting of pupils. The particular school used was selected because no other school studied had at least one pupil in each of the twelve stratifications of pupils. The teacher in this school was not retested in the reliability study because the purpose of readministration of the instrument was explained to him in order to obtain his cooperation in retesting his pupils. Four of the remaining twenty teachers were randomly assigned to repeat the teacher form of the semantic differential instrument, and twelve teachers were randomly assigned to repeat the prediction form of the instrument for one of their pupils. A repeated prediction was desired for each of the twelve pupil subgroups. The particular pupil for whom a teacher predicted connotative meanings was the first of his pupils appearing on an alphabetized list of pupils for a socio-economic by grade subgroup. Each of the subgroups of pupils appeared on a separate alphabetized list.

The first teacher whose code number was located in a table of random numbers beyond the starting point selected was assigned to predict connotative meanings for pupil subgroup number one, the second was assigned to predict connotative meanings for pupil subgroup number two, and so forth. When a teacher did not have a pupil in the socio-economic by grade subgroup for which he was selected, the next teacher drawn who did have a pupil in this subgroup was used. Any teacher who was passed over was eligible to predict for another subgroup of pupils when his code number appeared again in the table of random numbers.

Statistical Procedure

The three research hypotheses appear in Chapter One. The null form of the hypotheses appear below.

Null Hypothesis One

Vocational agriculture pupils classified into three positions on the socio-economic continuum by four secondary school grades place the same connotative meaning on the stimulus concepts used in the study.

The statistical model used in testing the null hypothesis for each of the eleven stimulus concepts was[1]

$$H_0: M_{11}=M_{21}=M_{31}=M_{41}=M_{12}=M_{22}=M_{32}=M_{42}=M_{13}=M_{23}=M_{33}=M_{43}=M$$

$$\alpha = .05$$

---

[1] The first subscript denotes the grade in secondary school and the second subscript denotes the socio-economic stratum.

More specifically, the null hypothesis was that the centroids of the scores of two sets of treatment groups were equal in the population.

A two-way multivariate analysis of variance was the statistical treatment used. Mean sums-of-squares-and-cross-products-matrices were computed for classification A effects, B effects, AB interaction effects, and within-cell error.[2]

Wilks' lambda criterion was then computed for each hypothesis matrix A, B, and AB. F-ratios based on Rao's (32, p. 262) approximation,

$$F = \simeq \frac{1 - \Lambda^{\frac{1}{S}}}{\Lambda^{\frac{1}{S}}} \frac{MS + 2\lambda}{2r} ,$$

were then computed utilizing the obtained lambdas. The computer program written by Carl Frederiksen (9) was used. See Appendix F for a description of Wilks' lambda criterion.

Null Hypothesis Two

Vocational agriculture pupils in each of twelve subgroups consisting of three socio-economic strata for each of four secondary school grade levels place the same connotative meaning on the stimulus concepts as the teacher group places on them.

The statistical model used in testing the null hypothesis for each of the eleven stimulus concepts for each of the twelve pupil groups was

$$H_0 : M_p = M_t$$

---

[2] Effects associated with grade in secondary school are the A effects, and the B effects are those associated with socio-economic level.

p--pupil group

t--teacher group $\alpha = .05$

More specifically, the null hypothesis was that the centroids of the scores for each pupil subgroup and for the teacher group were equal in the population studied.

Wilks' lambda criterion was again used for testing the significance of the difference between the two group centroids in hypothesis two. The test is exact in this case, because Λ reduces to a function of Hotelling's T^2, which is a multivariate analog of student's _t_. See Appendix F for a description of Wilks' lambda criterion and Hotelling's T^2. The computer program written by Jane Tucker (41) was used.

Null Hypothesis Three

Predictions of connotative meaning for the stimulus concepts made by teachers for their pupils will be equally accurate for each of the twelve subgroups of pupils.

The units of measurement analyzed were the absolute discrepancies between the meaning of a stimulus concept as checked by pupils and the predicted meaning as checked by teachers. The discrepancy scores on all ten scales for one stimulus concept were collapsed into one discrepancy score. Discrepancy scores of all twelve pupil subgroups for all eleven stimulus concepts (the discrepancy for the stimulus concepts) were the dependent variables.

A two-way multivariate analysis of variance treatment of the data, which was identical to the statistical treatment of hypothesis one, was applied, using the discrepancy scores described above.

CHAPTER III

THE PRESENTATION AND ANALYSIS OF DATA

The Results of Tests of Hypothesis One

The purpose of the first hypothesis was to determine whether or not a stimulus concept had the same meaning for twelve classifications of pupils consisting of four secondary school grade levels and three socio-economic groups.

Null Hypothesis One

The null hypothesis was that vocational agriculture pupils classified into three positions on the socio-economic continuum by four secondary school grades place the same connotative meaning on the stimulus concepts used in the study.

A two-way multivariate analysis of variance statistical treatment was applied to the data obtained from the twelve subgroups of pupils for each of the following stimulus concepts: (1) learning by doing, (2) leadership, (3) cooperation, (4) Future Farmers of America, (5) farming, (6) vocational agriculture, (7) agricultural mechanics instruction, (8) supervised farming program, (9) non-farm agricultural occupation, (10) on-farm instruction, and (11) teacher of agriculture.

The effects associated with grade level in school were not statistically significant for any of the eleven stimulus concepts. The interaction was not significant for any of the eleven stimulus concepts. The effects associated with socio-economic strata (B effects) were significant for the words "leadership" and "cooperation" at the 95 percent level of confidence. The profiles of means for the three socio-economic strata of pupils for the stimulus concept "leadership" appear in Figure 2 and

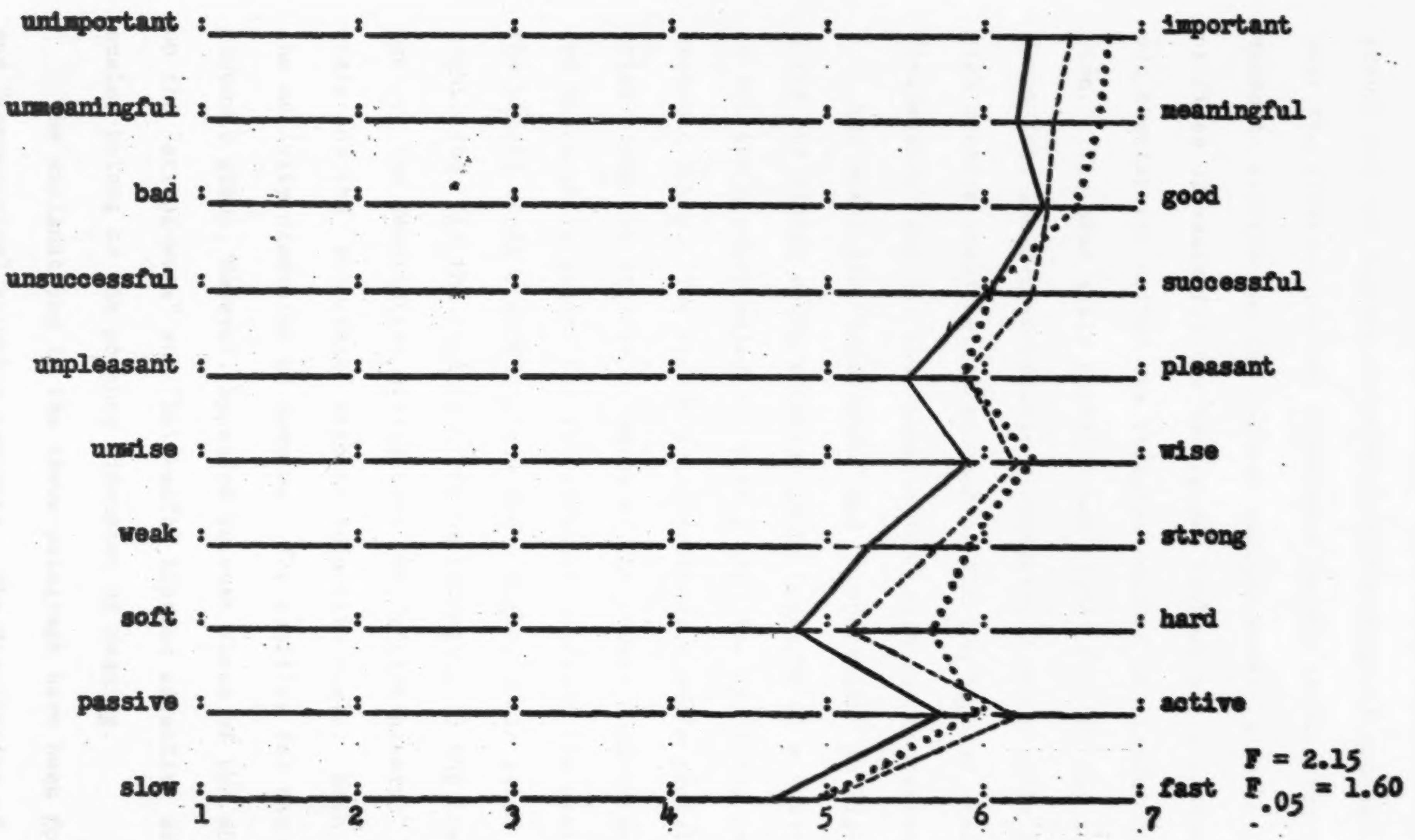


Figure 2. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores* of pupils by socio-economic strata.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by one group of pupils.

..... low socio-economic stratum
---- middle socio-economic stratum
____ high socio-economic stratum

the profiles of means for the stimulus concept "cooperation" appear in Figure 3. Figure 2 shows that the greatest profile difference is between the lowest socio-economic stratum (the socio-economically disadvantaged group) and the highest socio-economic stratum of pupils. Figure 3 shows that the greatest profile difference exists between the middle socio-economic stratum and the highest socio-economic stratum of pupils. The profiles of means for the lowest and highest socio-economic groups did not overlap for either the stimulus concept of "leadership" or "cooperation." The mean scale position was higher for the low socio-economic group (the socio-economically disadvantaged group) than it was for the high socio-economic group on each of the ten bipolar scales for the "leadership" and for the "cooperation" stimulus concepts.

The means for "leadership" and "cooperation" in Figure 2 and Figure 3 for the middle socio-economic group appeared at a lower scale position on all ten bipolar adjective scales than the means for the highest socio-economic group. The middle socio-economic group's profile of means did criss-cross the profile of means of the lowest socio-economic group. On two descriptive scales for two stimulus concepts the profile of means of the middle socio-economic group had a higher scale value (appeared to the right) than did the profile of means belonging to the lower socio-economic group. The descriptive scales were the "active-passive" bipolar adjective scale and the "slow-fast" bipolar adjective scale. Both scales belong to the activity dimension of meaning. The profiles for the middle socio-economic group, however, appeared between those of the other two groups on the "strong-weak" and "hard-soft" bipolar adjective scales. Both scales belong to the potency dimension of meaning.

The explanations in the above paragraph have been for the "leadership" and "cooperation" stimulus concepts. The description of profile positions

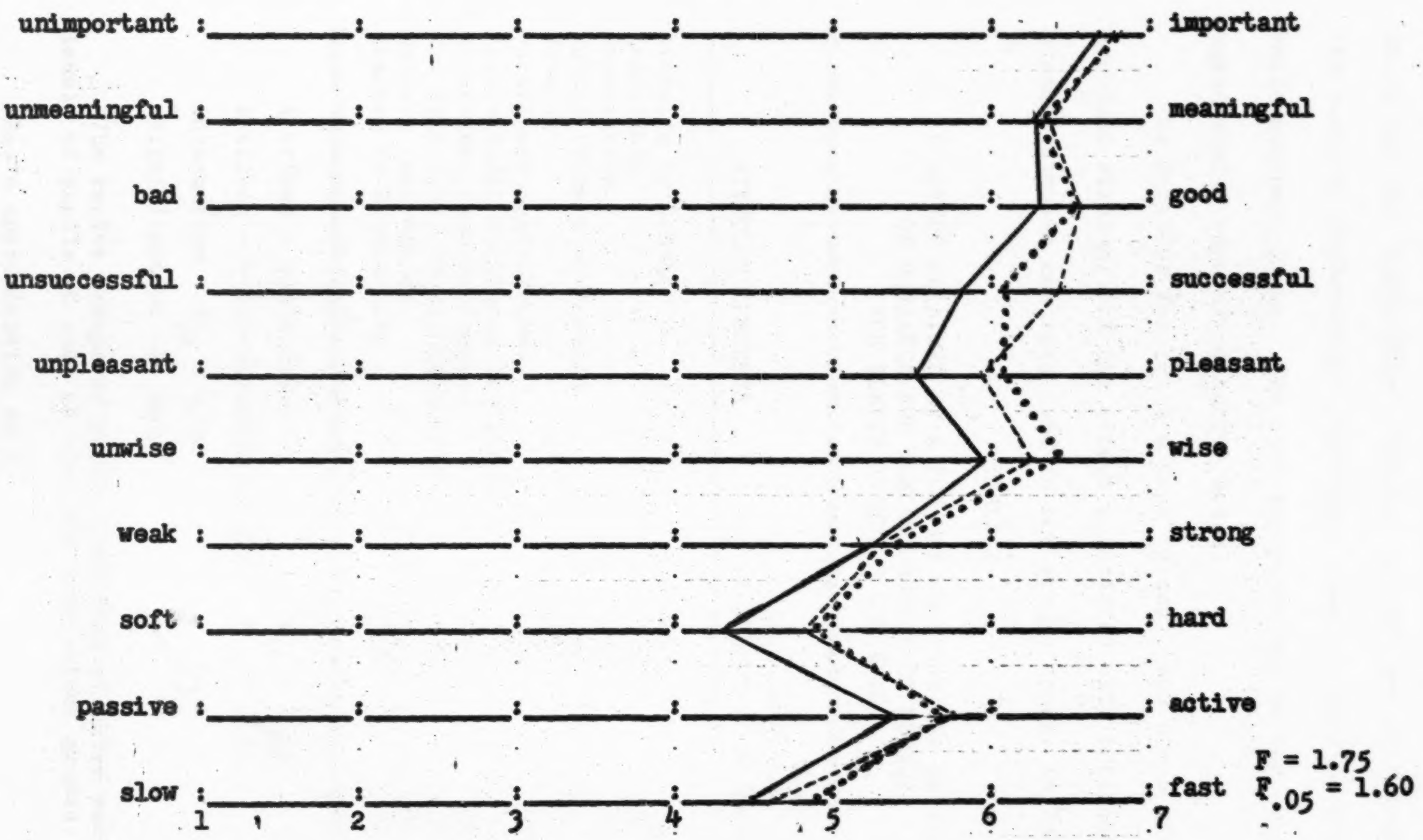


Figure 3. Profiles for connotative meaning of the stimulus concept "cooperation", showing mean raw scores* of pupils by socio-economic strata.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by one group of pupils.

on the first six bipolar adjective scales (those belonging to the evaluative dimension of meaning) are given here for the "leadership" stimulus concept. In general, the profile position of the middle socio-economic group for the "leadership" stimulus concept was at a lower scale value on the semantic differential instrument than the profile position of the low socio-economic group. The only exception was on the successful-unsuccessful bipolar adjective scale.

The F-ratios for the A effect (grade), and the B effect (socio-economic stratum) and the effect associated with interaction, for all eleven stimulus concepts used in the study, appear in Table 2.

TABLE 2

F-RATIOS OBTAINED BY A TWO-WAY MULTIVARIATE ANALYSIS OF VARIANCE FOR TWELVE GROUPS[a] OF PUPILS FOR ELEVEN STIMULUS CONCEPTS

	F-RATIOS[b]		
STIMULUS CONCEPTS	A EFFECT	B EFFECT	INTERACTION
Learning by Doing	1.17	1.48	1.14
Leadership	.99	2.15*	.88
Cooperation	.90	1.75*	1.07
Future Farmers of America	.92	1.47	.95
Farming	.92	.95	1.03
Vocational Agriculture	1.05	.93	.73
Agricultural Mechanics Instruction	.95	1.10	.78
Supervised Farming Program	1.43	.76	1.25
Non-farm Agricultural Occupation	.99	.86	.94
On-farm Instruction	1.10	1.09	.84
Teacher of Agriculture	1.08	1.43	.96

A effect - grade level $F_{05} = 1.49$

B effect - socio-economic strata $F_{05} = 1.60$

Interaction - $F_{05} = 1.30$

*Significant at .05 level

[a] The twelve groups of pupils consisted of three socio-economic levels of pupils at each of the four high school grades.

[b] Rao's approximation of F.

In order to determine whether or not each of the three socio-economic groups were significantly different from each other or whether or not the real difference was only between two of the three groups, a statistical test[1] was made between the three possible mathematical combinations of the three socio-economic strata. A significant difference existed between the lowest socio-economic stratum and the highest socio-economic stratum for the "leadership" stimulus concept, and a significant difference existed between the middle socio-economic stratum and the highest socio-economic stratum for the "cooperation" stimulus concept. The statistical test[1] between the lowest socio-economic stratum (the socio-economically disadvantaged group) and the highest socio-economic stratum was significant at both the .05 and .01 level for the "leadership" stimulus concept. A similar test between the middle socio-economic stratum and the highest socio-economic stratum was significant at the .05 level for the "cooperation" stimulus concept. The profiles of means for the "leadership" stimulus concept for these two significantly different groups of pupils appear in Figure 4. Profiles of means for "cooperation" for the significantly different groups appear in Figure 5. The profiles of the groups in Figure 5 do not overlap at any point. This is true for the significantly different groups for both the "leadership" stimulus concept and the "cooperation" stimulus concept.

The extent to which the ten bipolar adjective scales discriminated between the two significantly different groups in the above tests is given by the coefficients of the discriminant function. The three largest (in absolute value) coefficients of the discriminant function for the test between the socio-economically disadvantaged group and the highest

---

[1] Hotelling's T^2. This test is explained under statistical procedure for hypothesis two and in Appendix F.

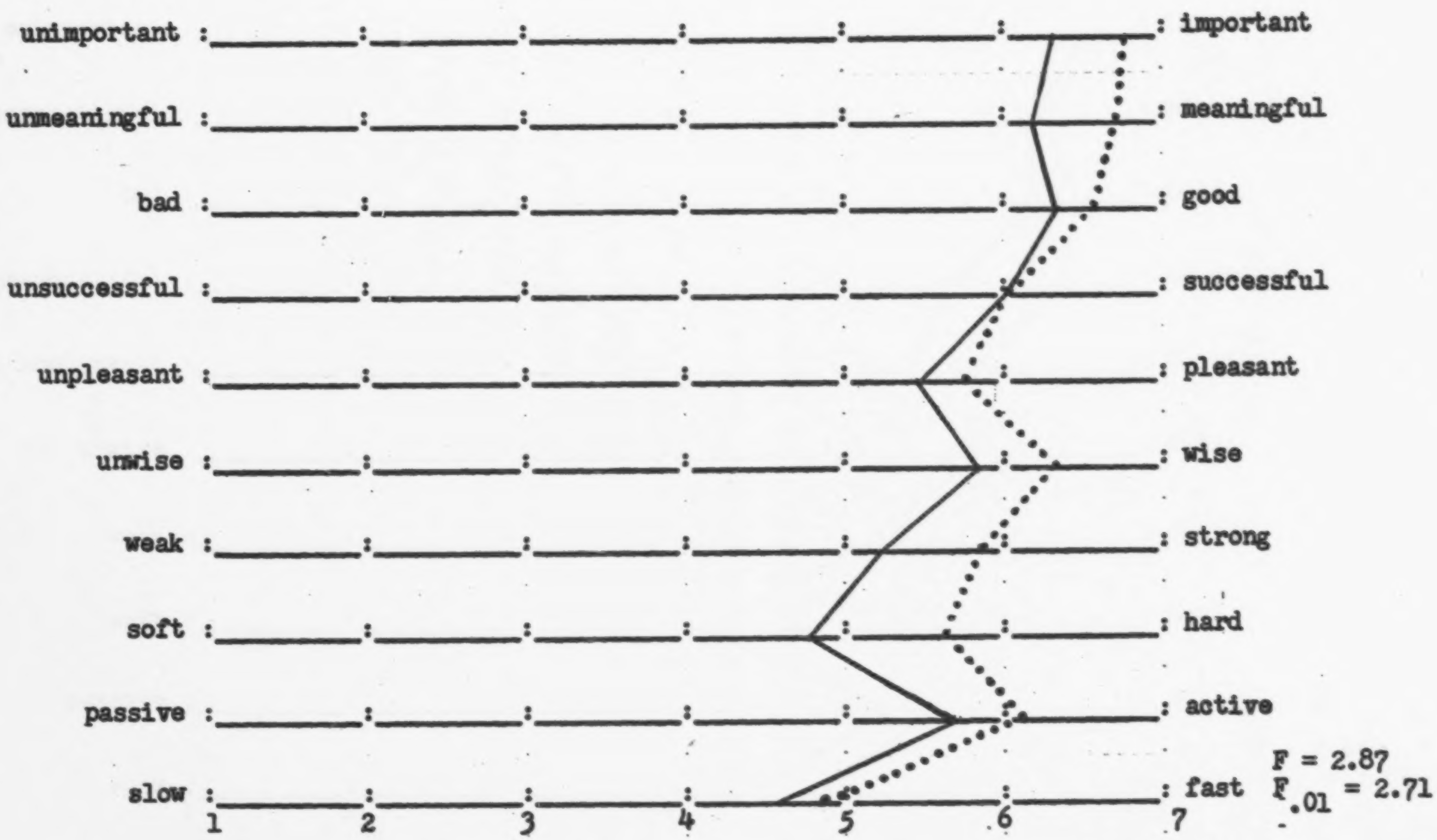


Figure 4. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores* of pupils in the lowest and highest of the socio-economic strata.

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by one group of pupils.

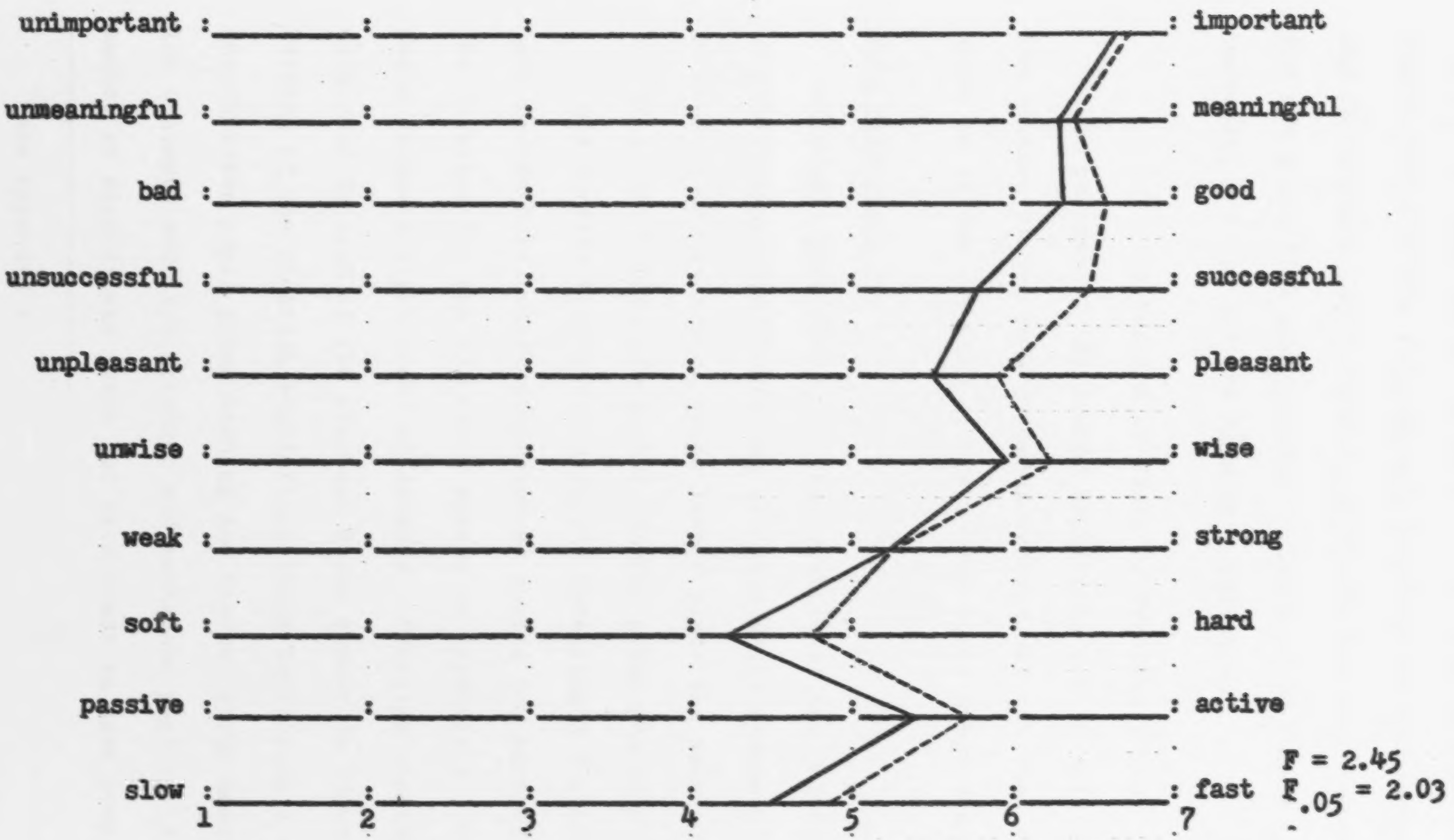


Figure 5. Profiles for connotative meaning of the stimulus concept "cooperation", showing mean raw scores* of pupils in the middle and highest of the socio-economic strata.

----- middle socio-economic stratum
____ highest socio-economic stratum

---

[*] Mean raw scores refer to the scale value corresponding to the average scale position checked by one group of pupils.

socio-economic group for the word "leadership" were .71 for the meaningful-unmeaningful variable, -.47 for the successful-unsuccessful variable, and .35 for the wise-unwise variable. The three largest (in absolute value) coefficients of the discriminant function for the test between the middle and the highest socio-economic group for the word "cooperation" were .73 for the successful-unsuccessful variable, -.38 for the strong-weak variable, and .32 for the hard-soft variable.

The Results of Tests of Hypothesis Two

The purpose of the second hypothesis was to determine whether or not the meaning placed on a stimulus concept was the same for the teacher group as it was for each of the twelve pupil subgroups.

Null Hypothesis Two

The null hypothesis was that vocational agriculture pupils in each of twelve subgroups consisting of three socio-economic strata for each of four secondary school grade levels place the same connotative meaning on the stimulus concepts as the teacher group places on them.

One-hundred thirty-two separate Hotelling's T^2 tests[2] were computed (one for each of twelve subgroups of pupils for each of eleven concepts). The F-ratios for the 132 tests appear in Appendix E. Nineteen of these tests showed a significant difference. Profiles showing the mean raw data used in each of the nineteen tests appear in Figures 7 through 25. Fifteen of the nineteen statistical tests indicating a significant difference between pupil group meaning and teacher group meaning for the stimulus concepts were for freshmen and sophomore pupils. Figure 6 shows the number of significant tests for each grade in each socio-economic

---

[2] See Appendix F.

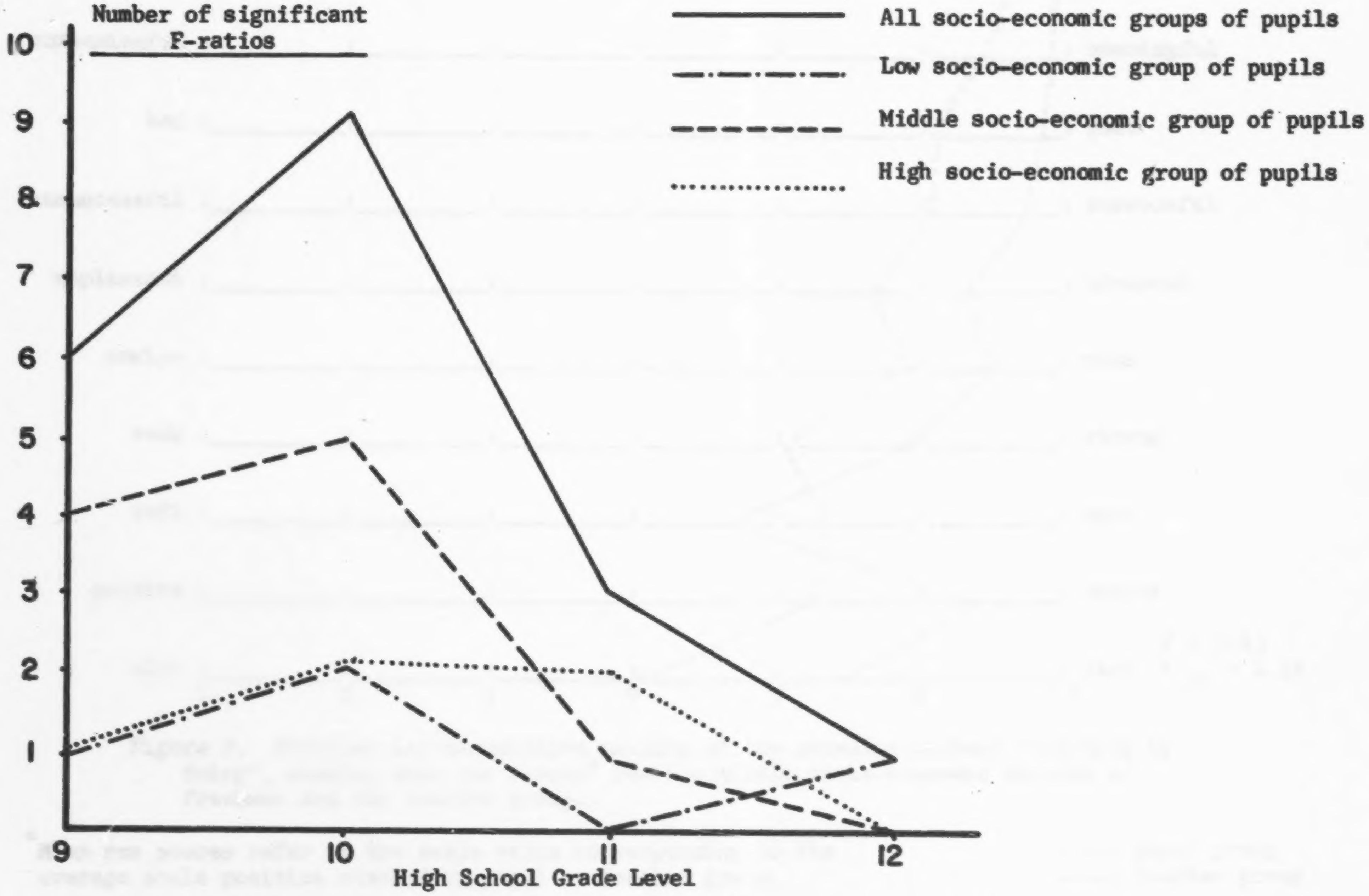


Figure 6. Number of significant F-ratios for difference in connotative meaning between twelve pupil groups and the teacher group for eleven stimulus concepts.

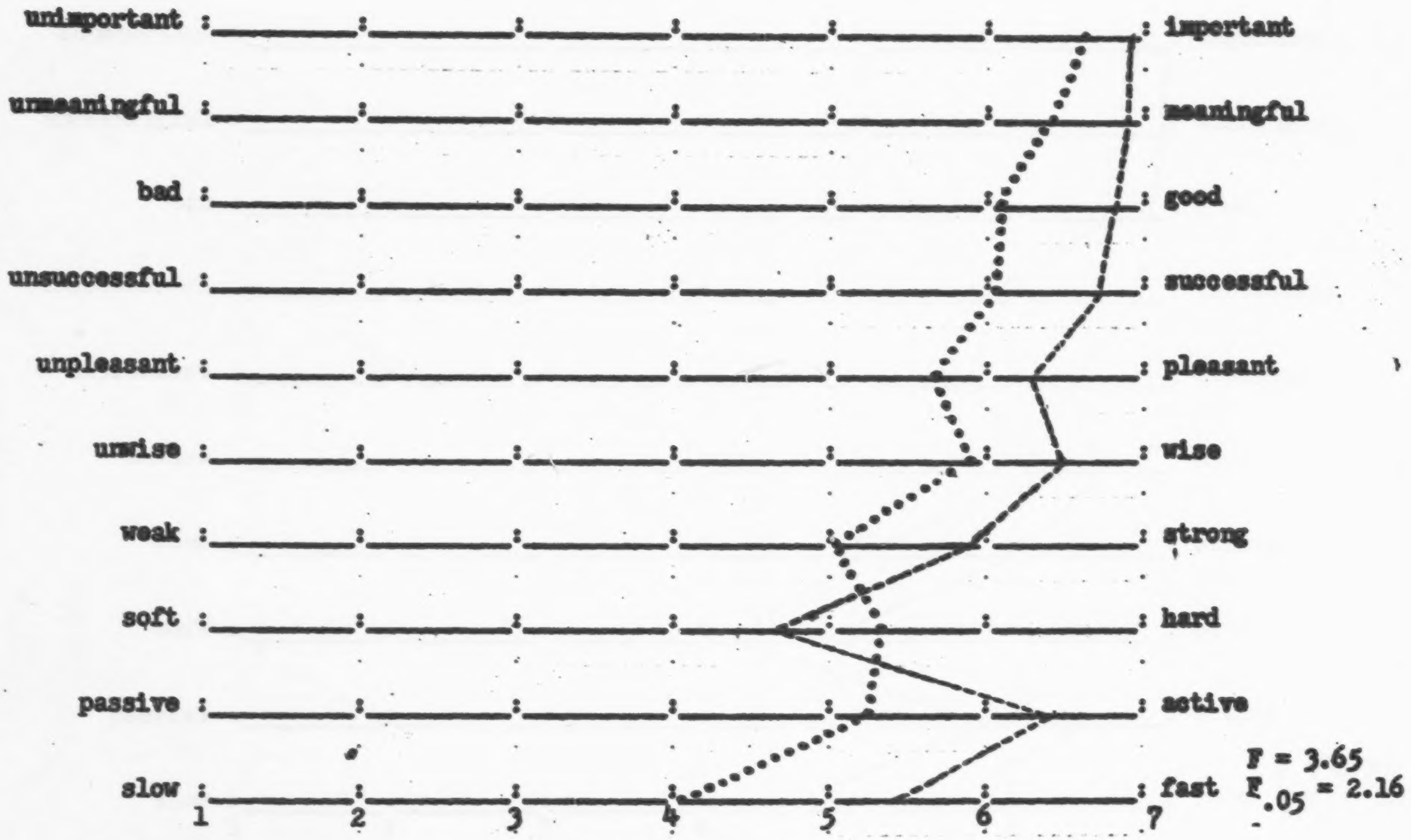


Figure 7. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores* for the middle socio-economic stratum of freshmen and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

········ pupil group
——— teacher group

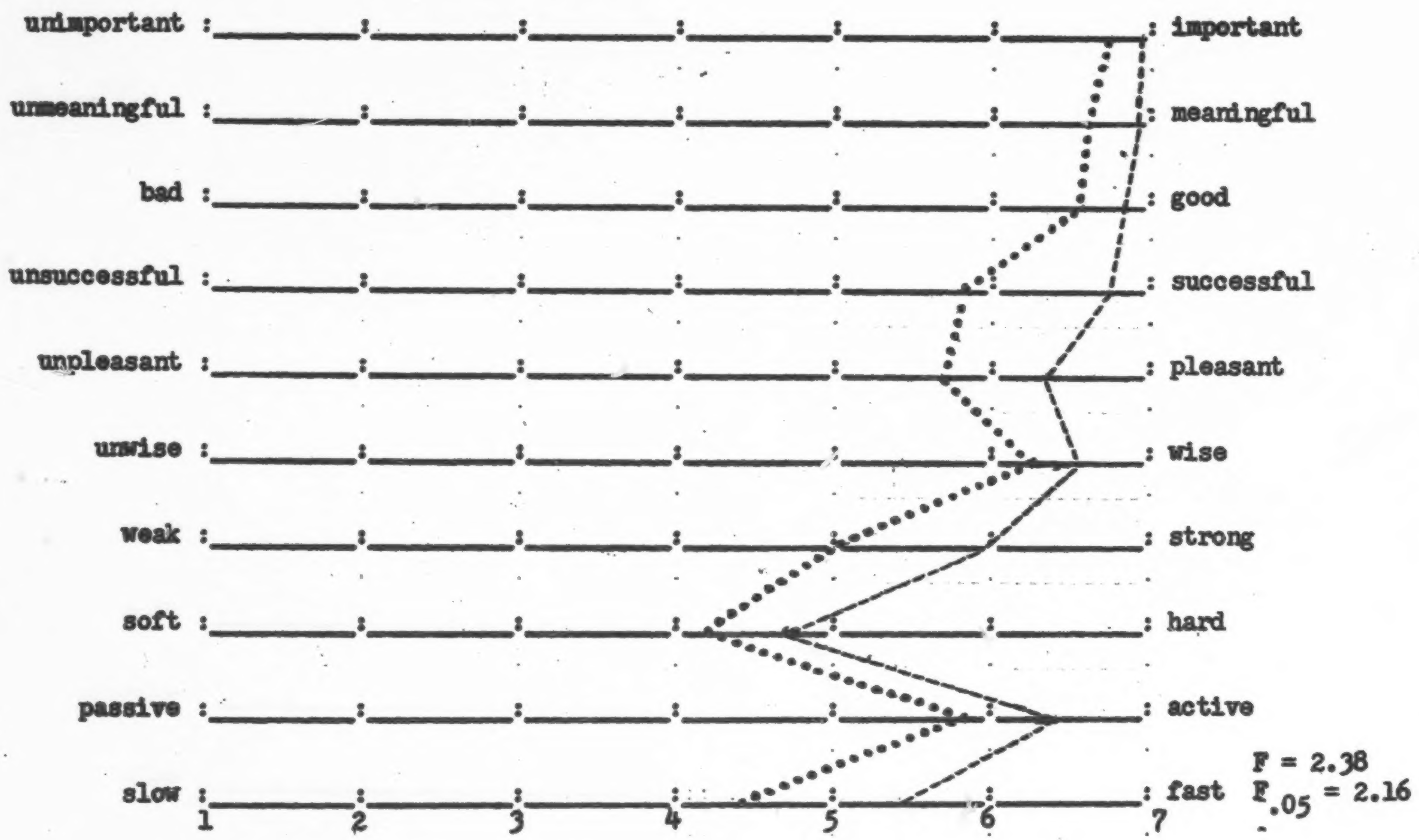


Figure 8. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores* for the middle socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

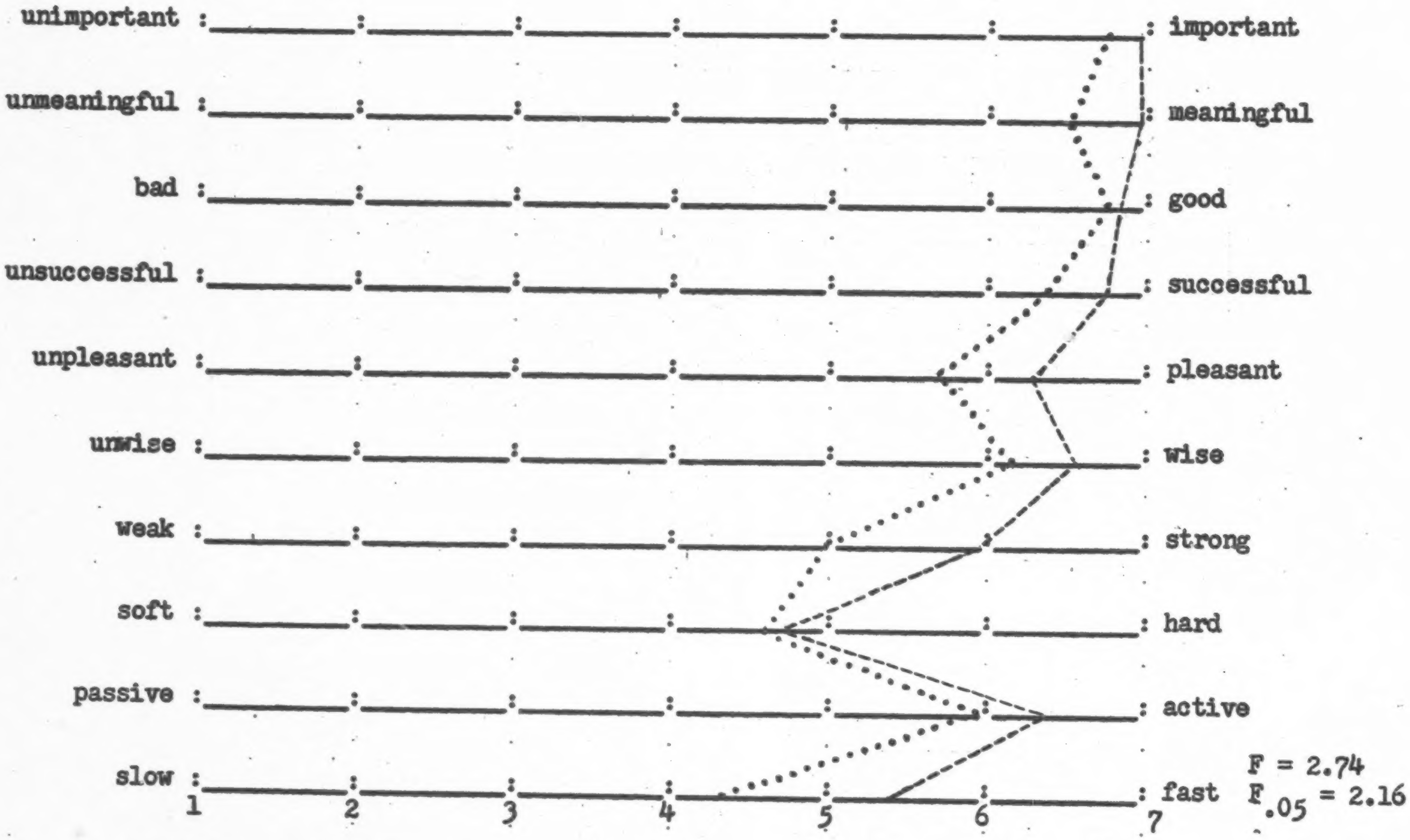


Figure 9. Profiles for connotative meaning of the stimulus concept "learning by doing", showing mean raw scores* for the highest socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

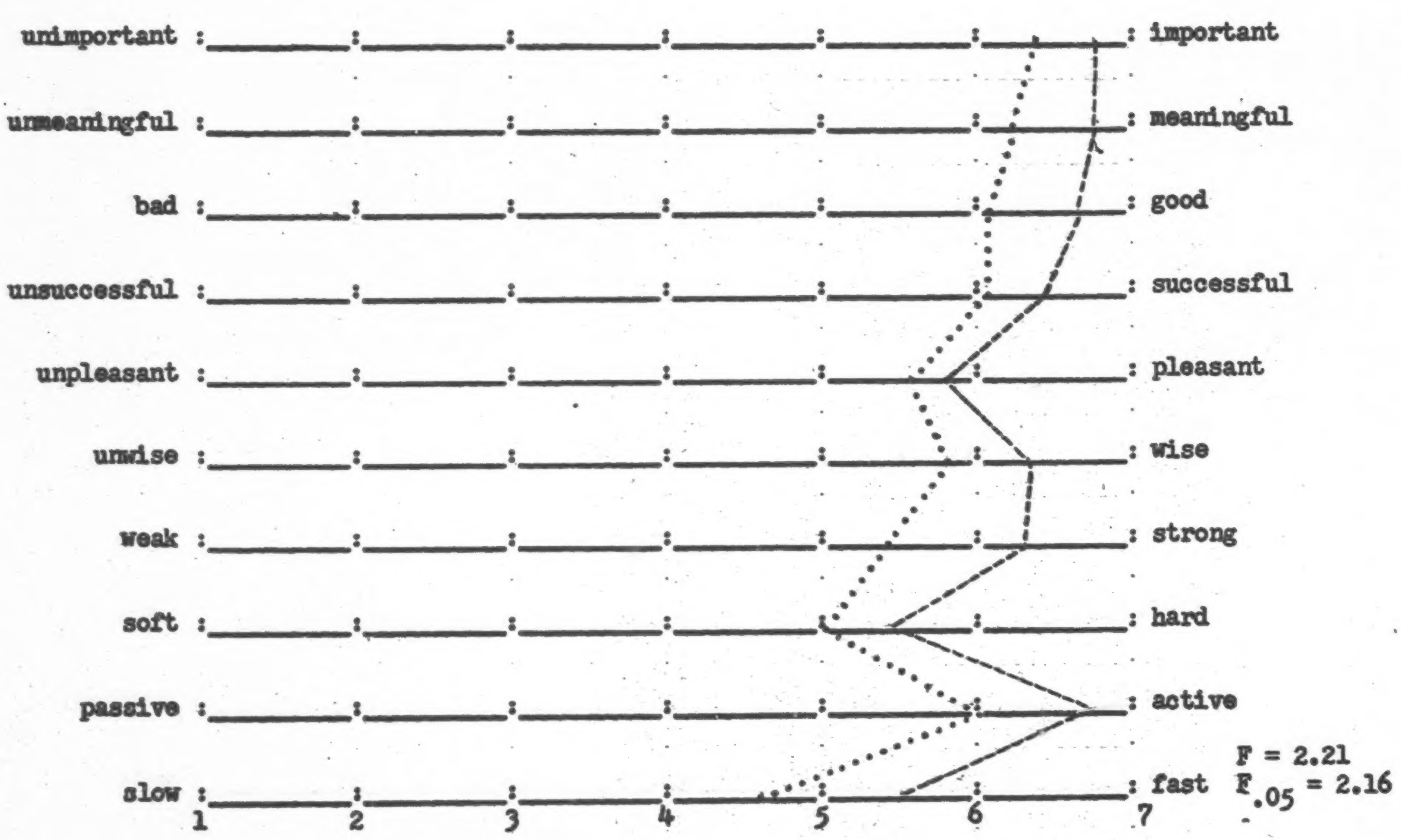
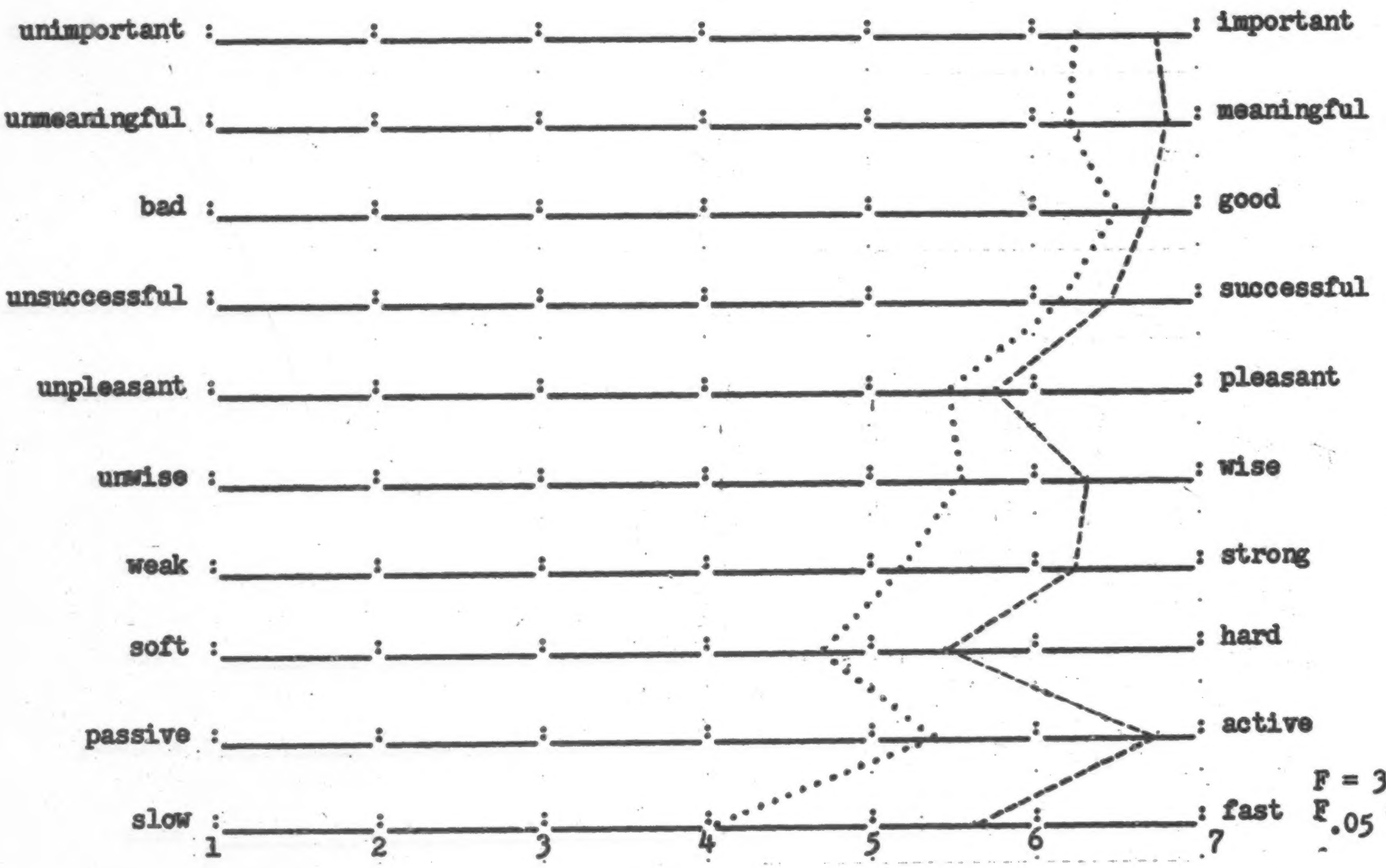


Figure 10. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores* for the middle socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.



$F = 3.14$

$F_{.05} = 2.16$

Figure 11. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores* for the highest socio-economic stratum of juniors and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
----- teacher group

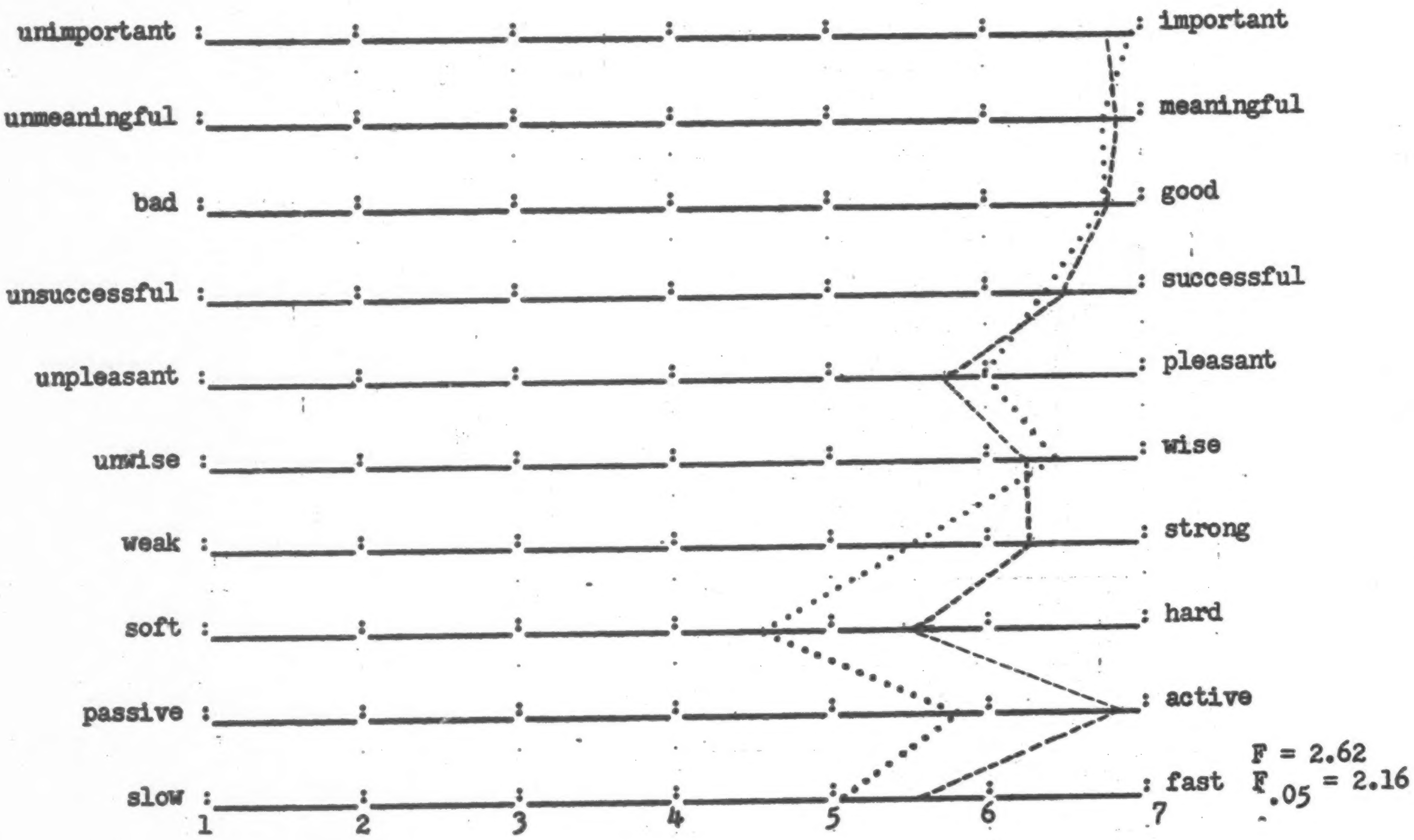


Figure 12. Profiles for connotative meaning of the stimulus concept "leadership", showing mean raw scores* for the lowest socio-economic stratum of seniors and the teacher group.

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

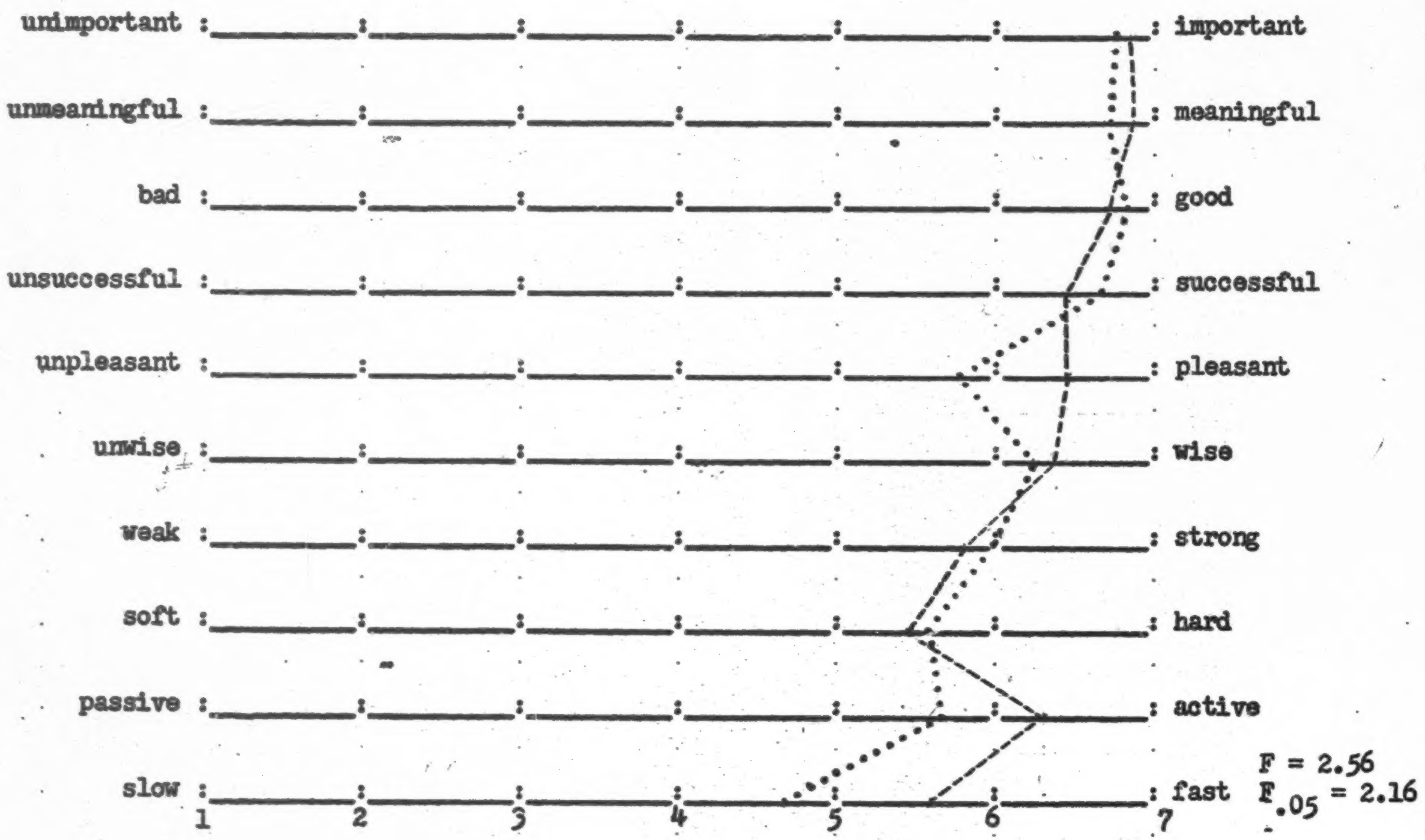


Figure 13. Profiles for connotative meaning of the stimulus concept "farming", showing mean raw scores* for the lowest socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
----- teacher group

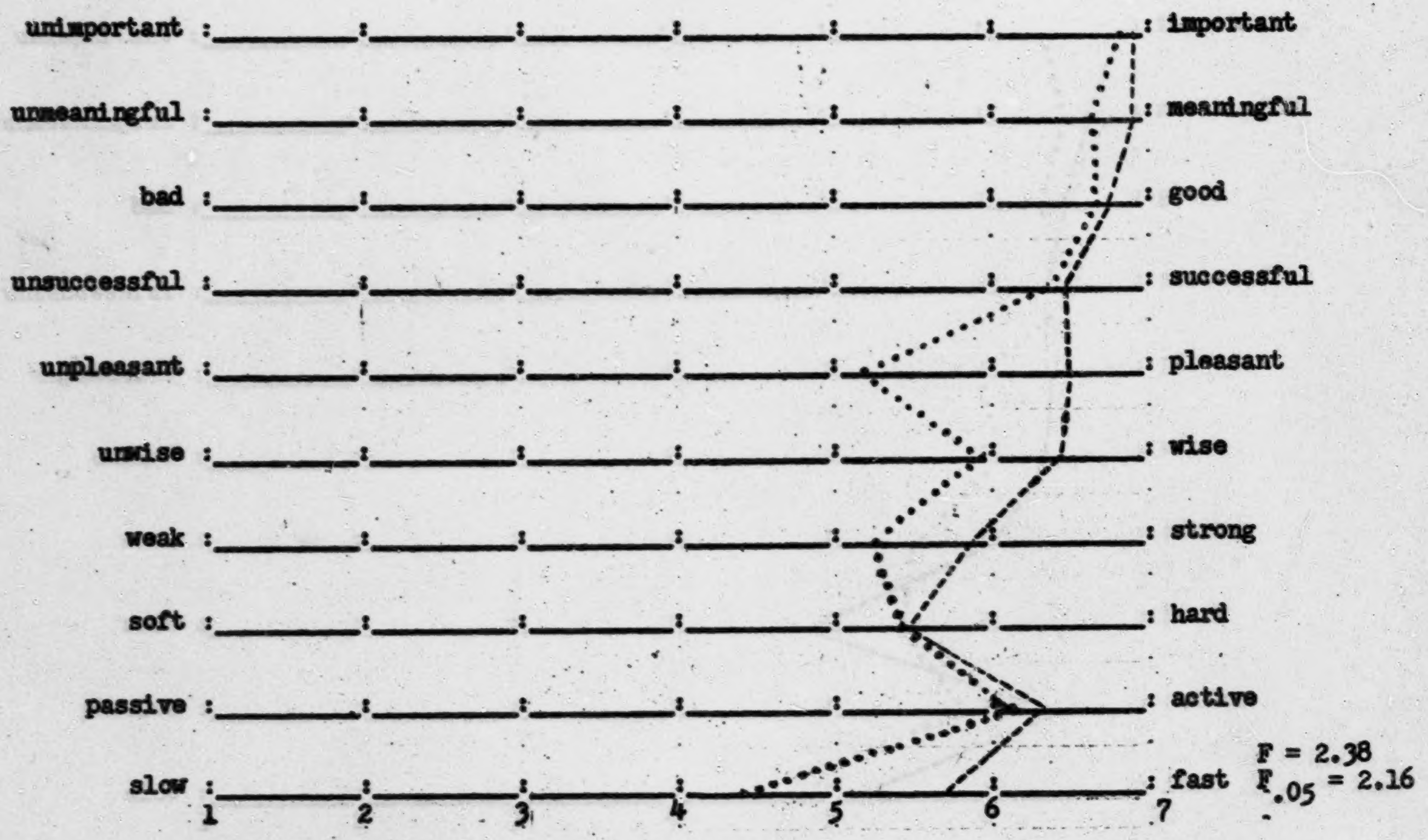


Figure 14. Profiles for connotative meaning of the stimulus concept "farming", showing mean raw scores* for the middle socio-economic stratum of sophomores and the teacher group.

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

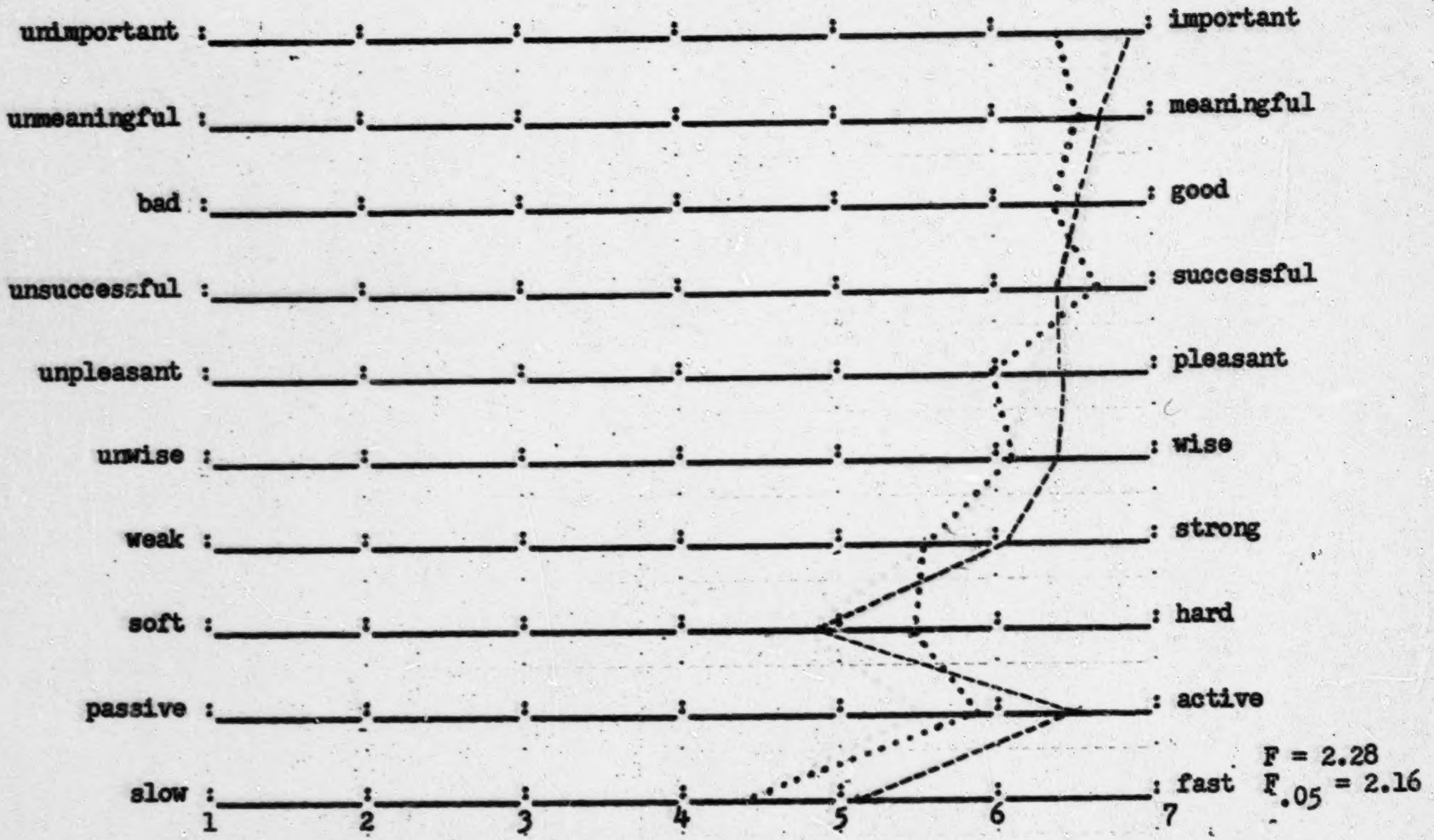


Figure 15. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores* for the middle socio-economic stratum of freshmen and the teacher group.

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

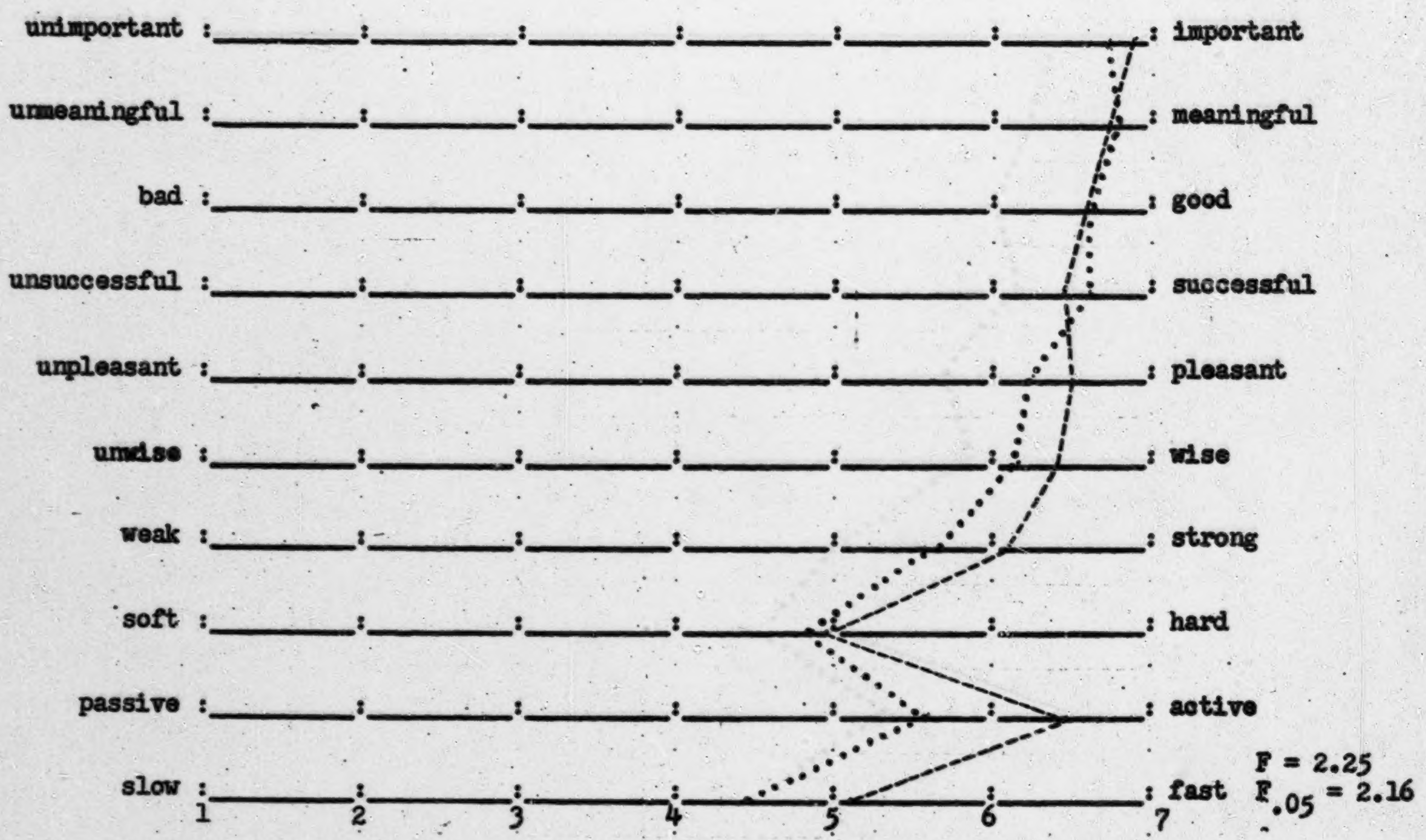


Figure 16. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores* for the middle socio-economic stratum of juniors and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
——— teacher group

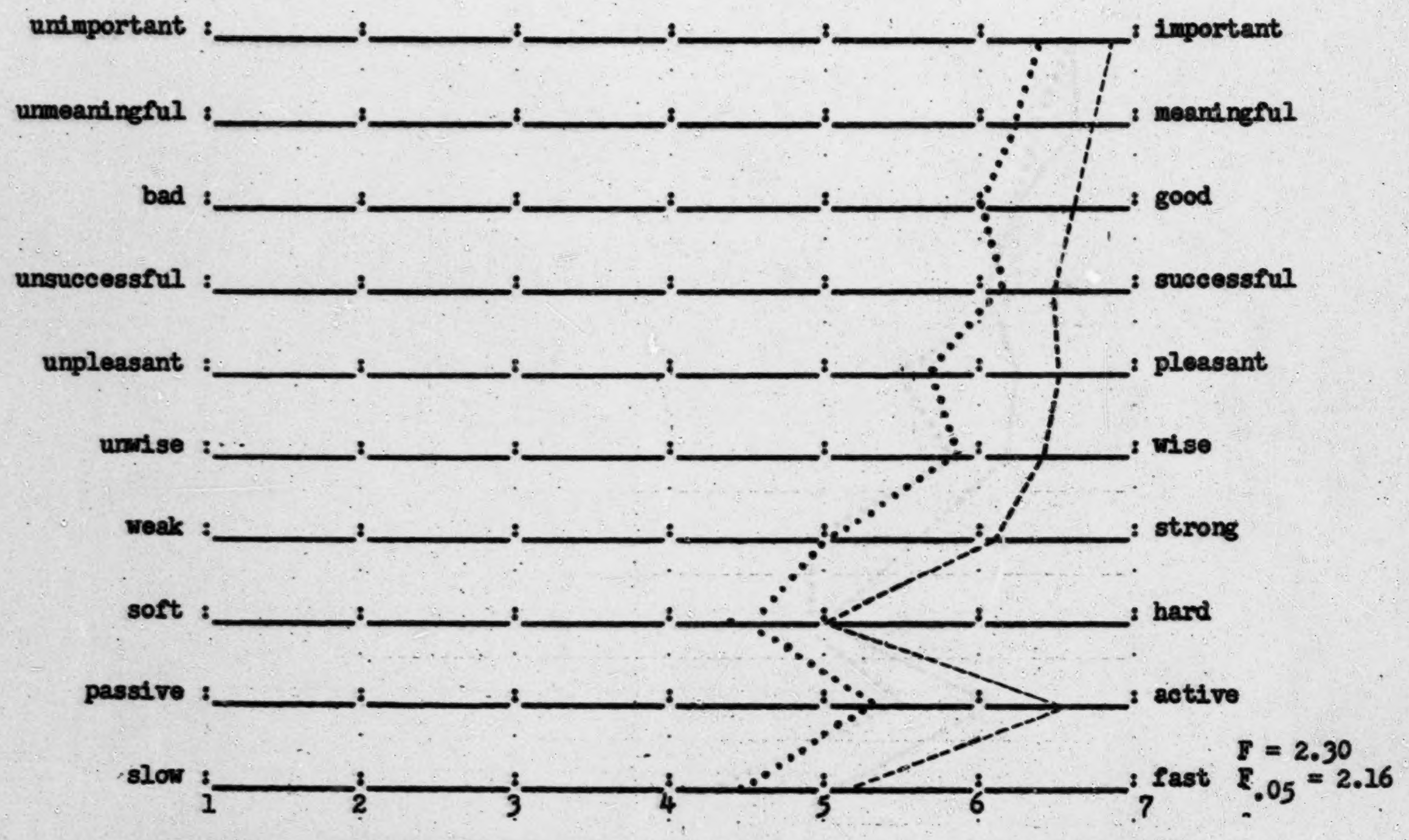


Figure 17. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing mean raw scores* for the highest socio-economic stratum of juniors and the teacher group.

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

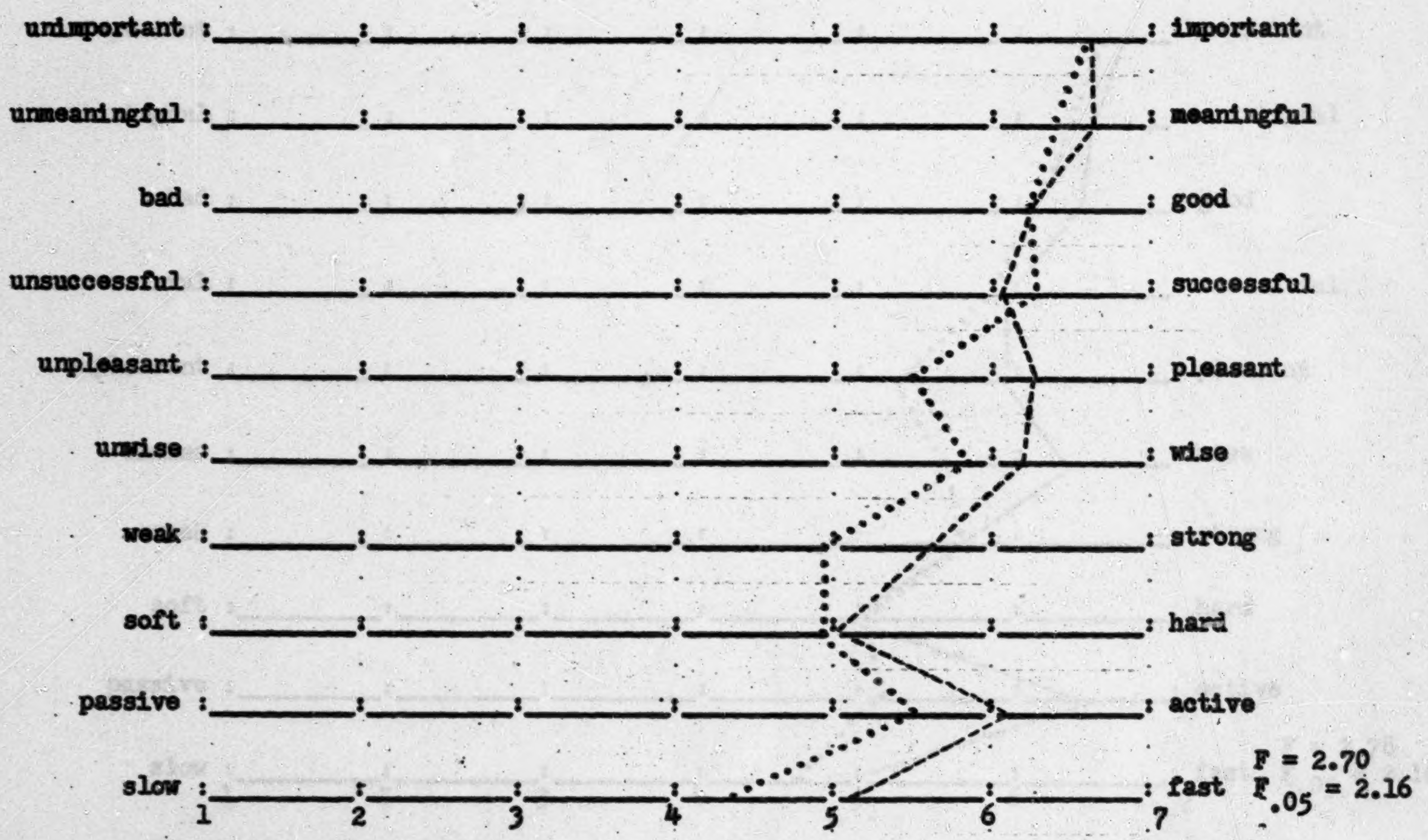


Figure 18. Profiles for connotative meaning of the stimulus concept "agricultural mechanics instruction", showing mean raw scores* for the middle socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
----- teacher group

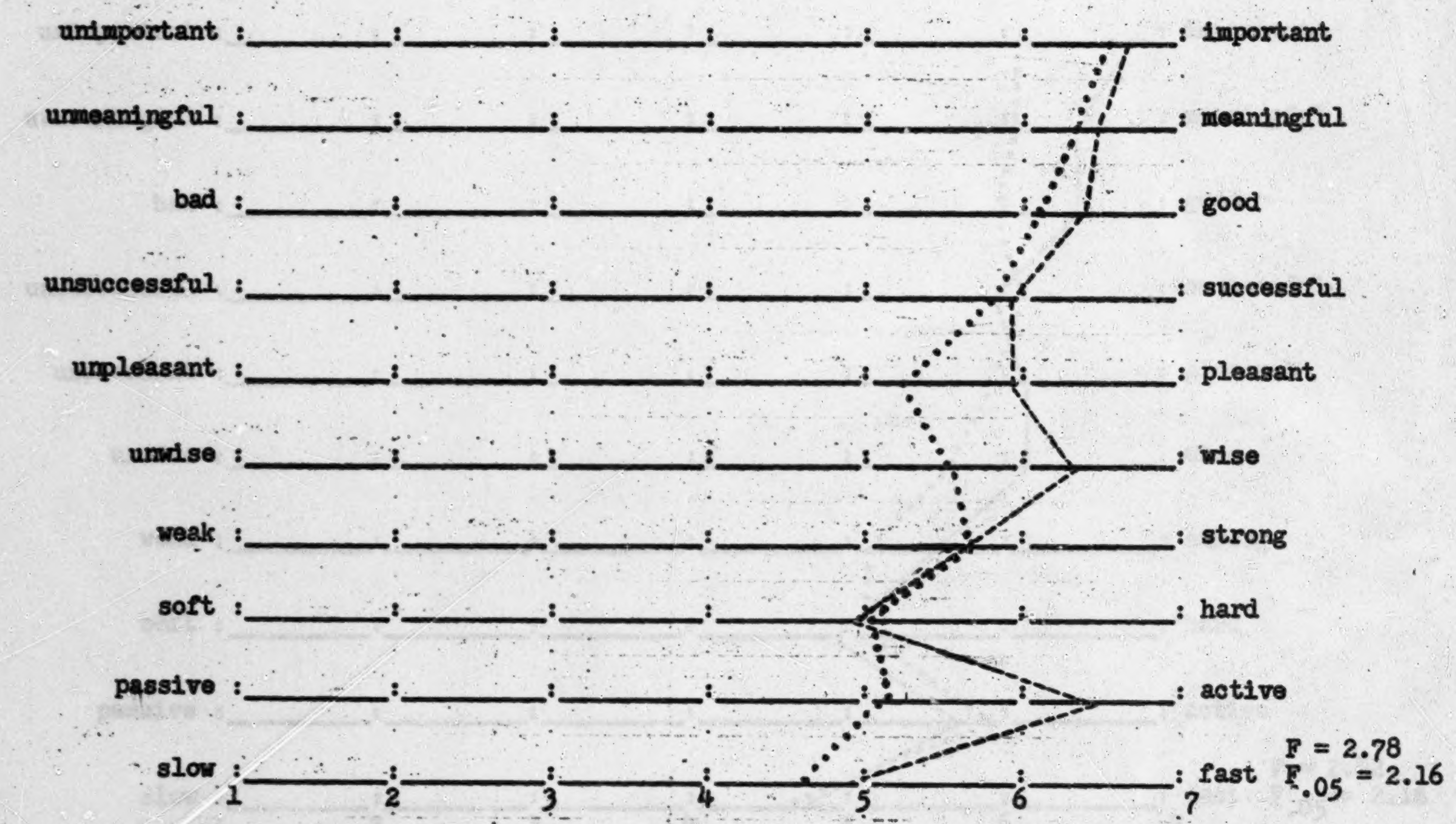


Figure 19. Profiles for connotative meaning of the stimulus concept "supervised farming program", showing mean raw scores* for the middle socio-economic stratum of freshmen and the teacher group.

..... pupil group
----- teacher group

---

* Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

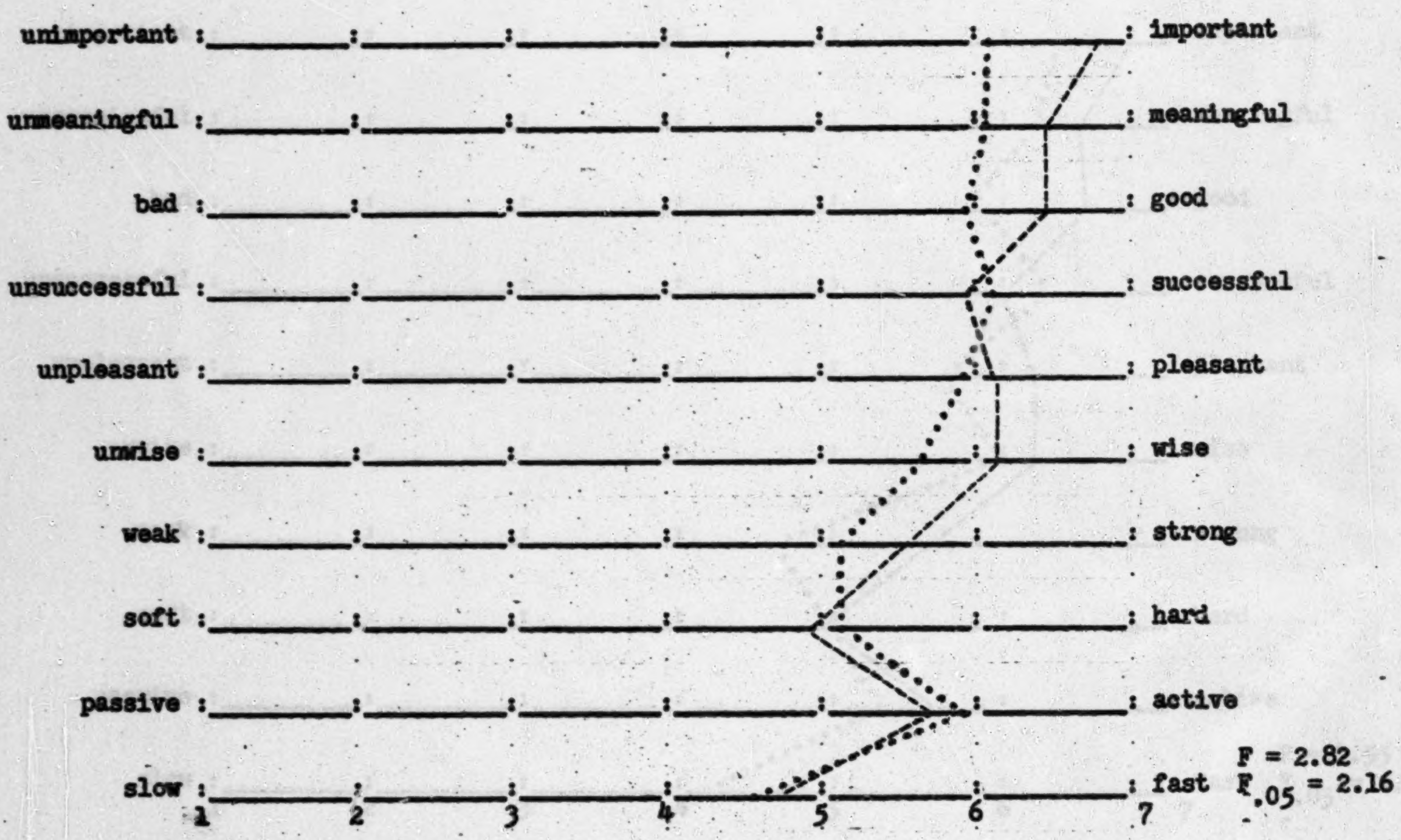


Figure 20. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores* for the lowest socio-economic stratum of freshmen and the teacher group.

[*] Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
----- teacher group

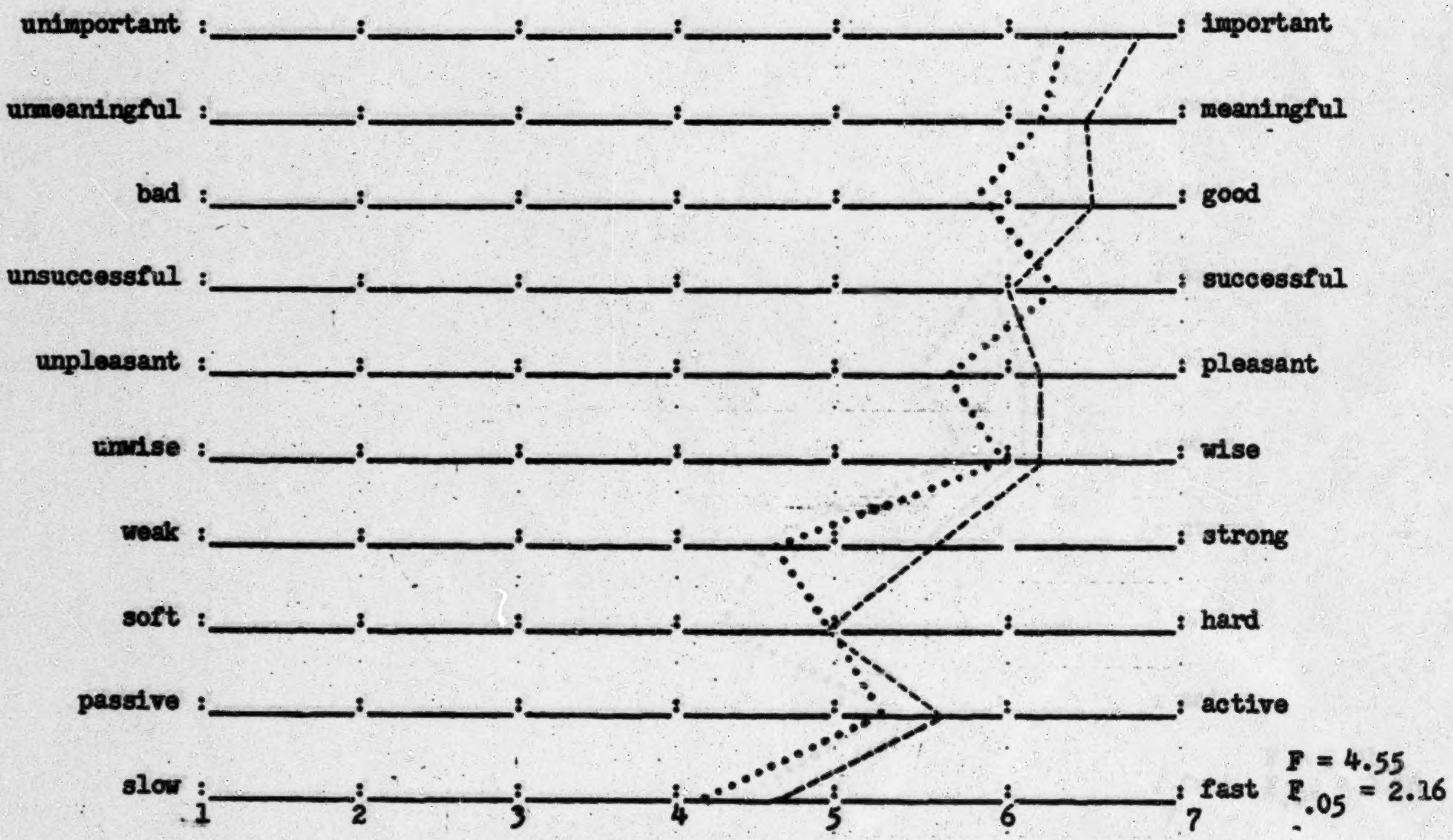


Figure 21. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores* for the lowest socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
---- teacher group

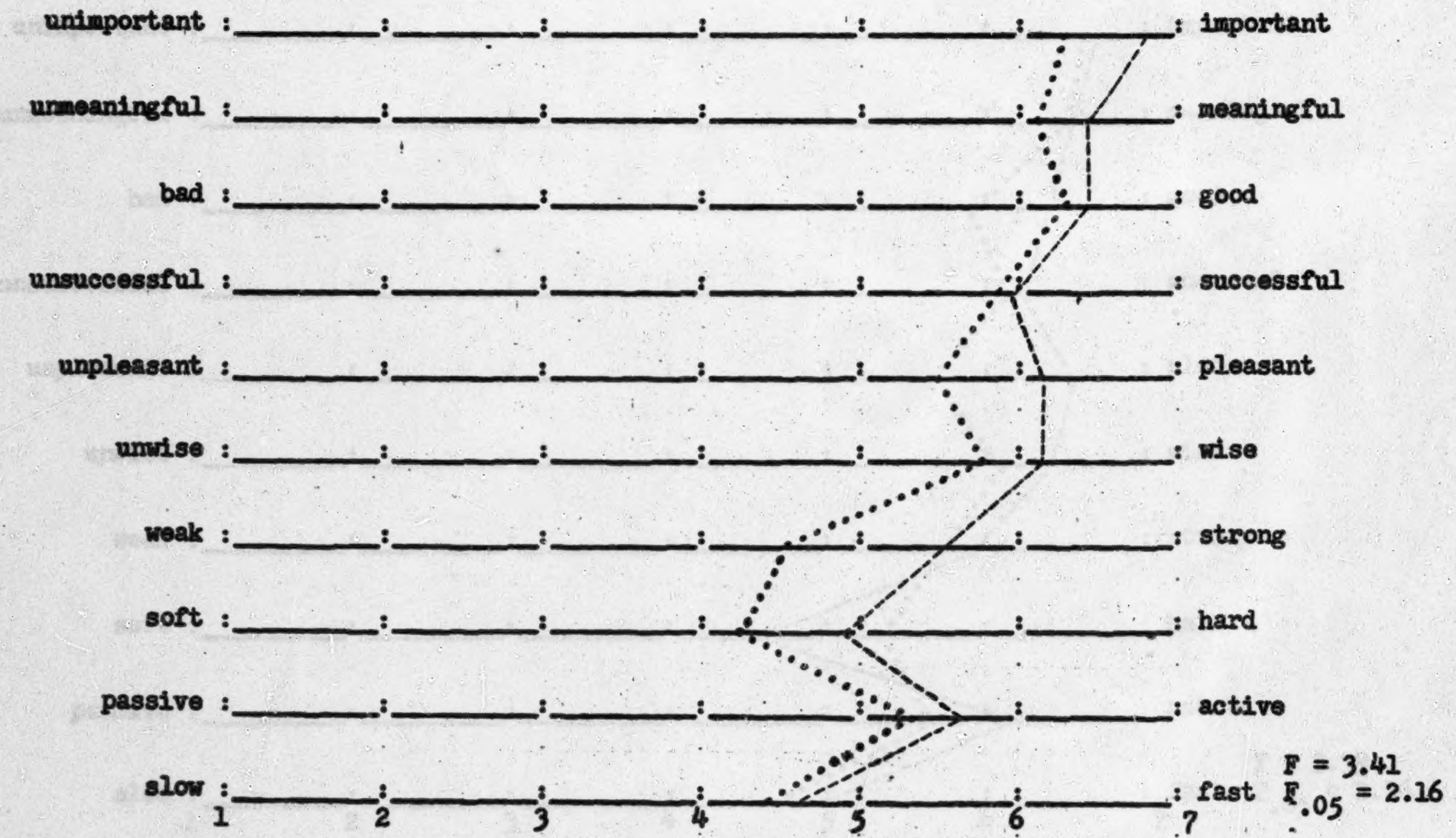


Figure 22. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing mean raw scores for the middle socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

..... pupil group
----- teacher group

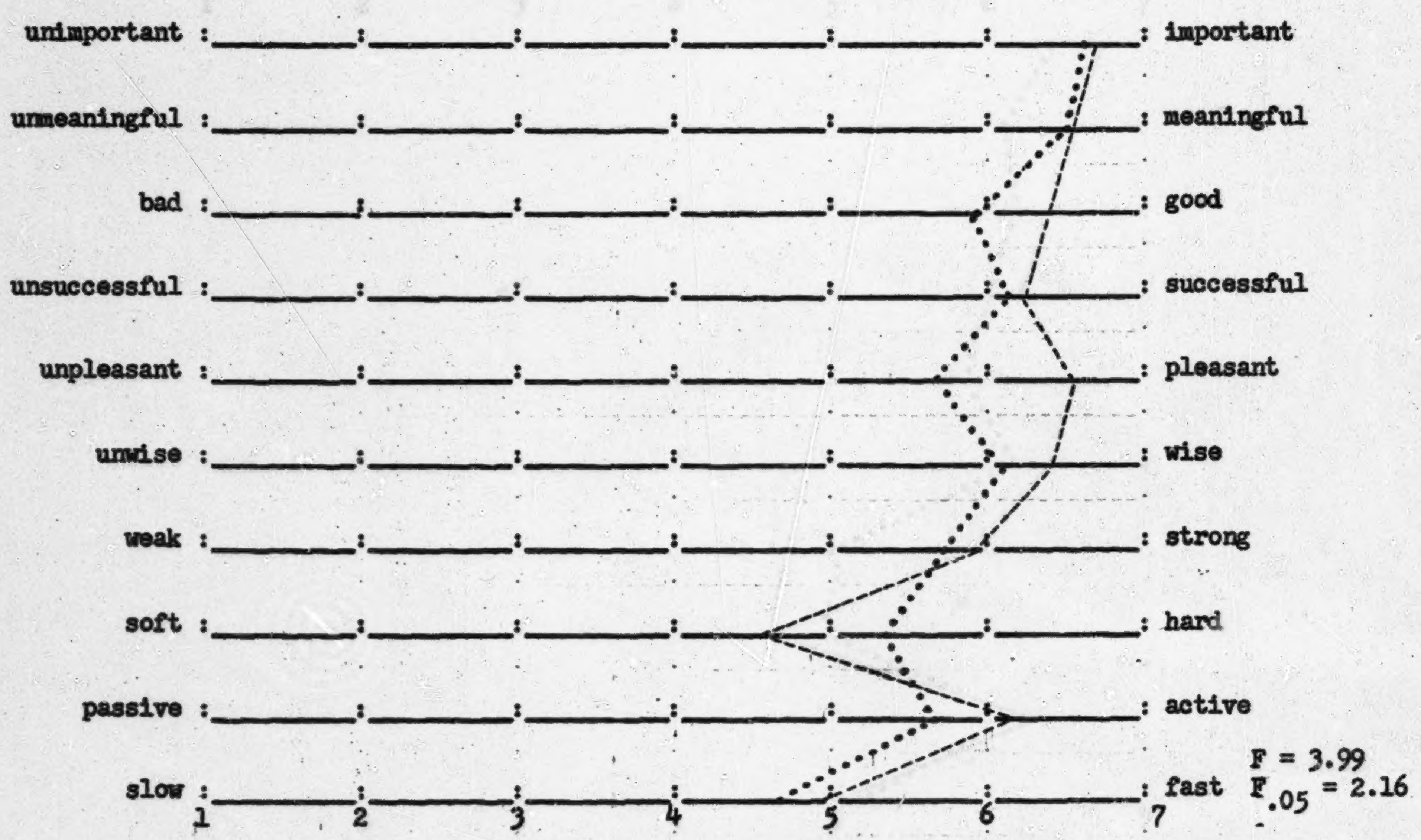


Figure 23. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing mean raw scores* for the middle socio-economic stratum of freshmen and the teacher group.

..... pupil group
----- teacher group

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

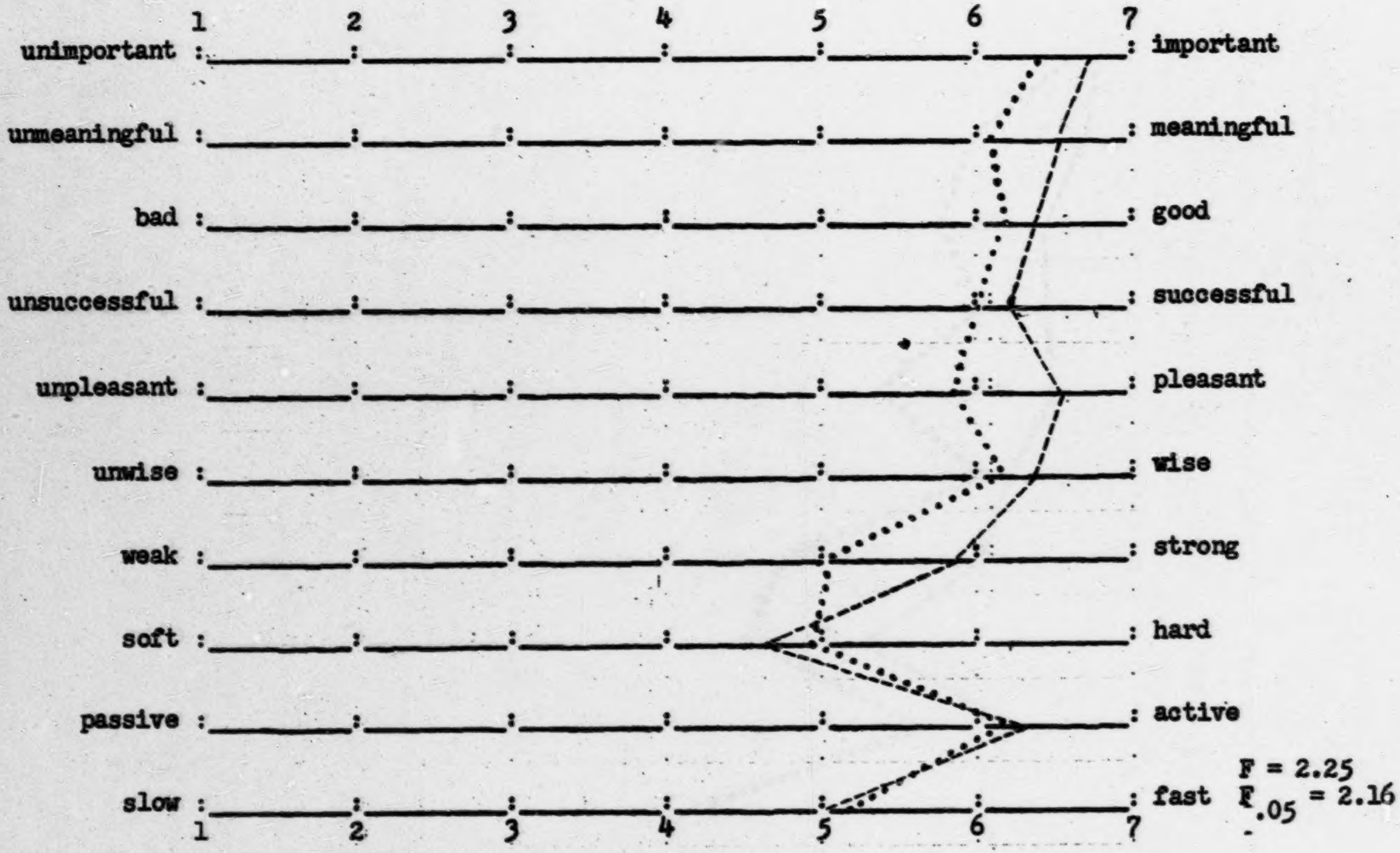


Figure 24. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing mean raw scores* for the highest socio-economic stratum of freshmen and the teacher group.

..... pupil group
----- teacher group

---

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

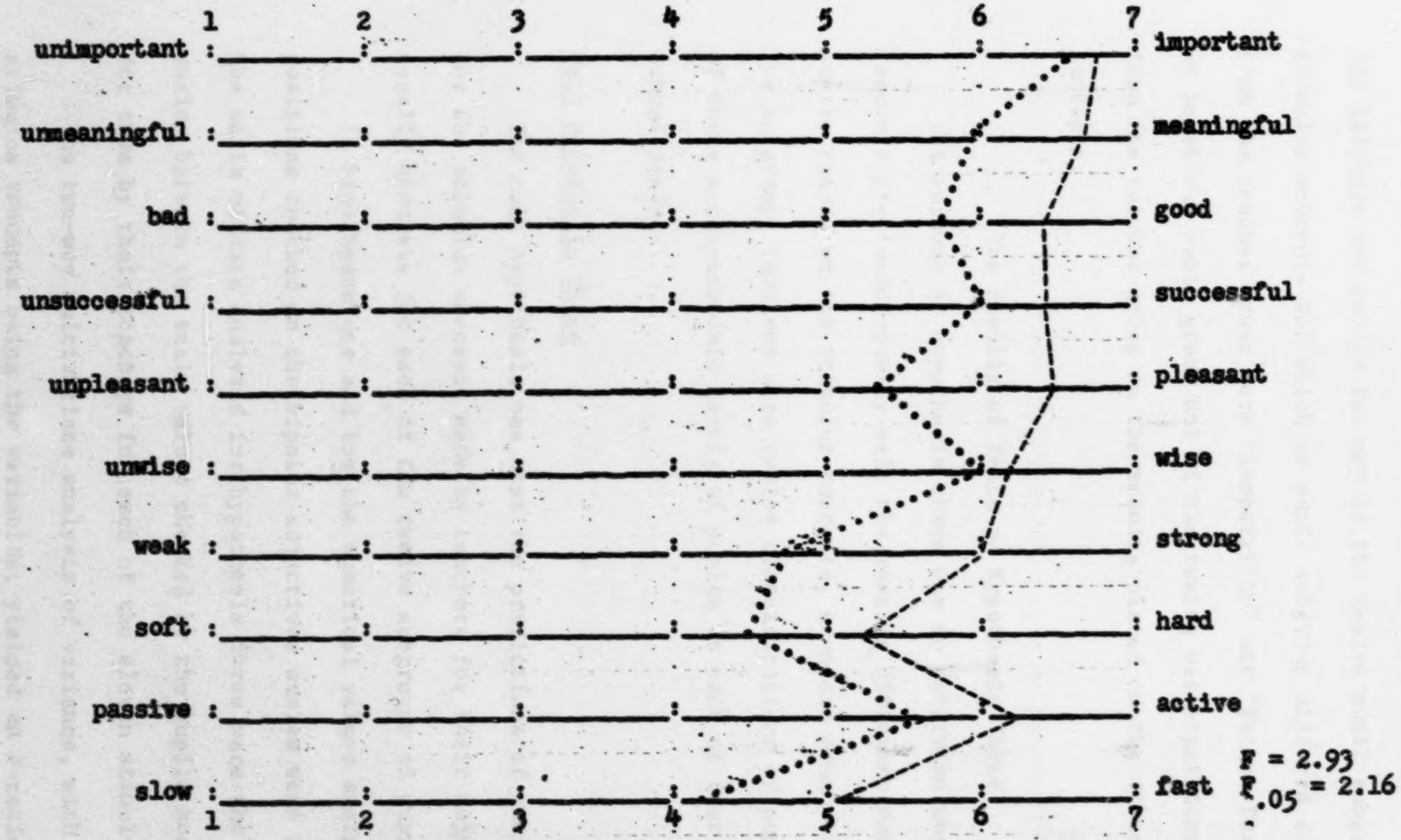


Figure 25. Profiles for connotative meaning of the stimulus concept "teacher of agriculture", showing mean raw scores for the highest socio-economic stratum of sophomores and the teacher group.

*Mean raw scores refer to the scale value corresponding to the average scale position checked by pupil or teacher group.

classification. Note that the frequency of significant tests are much less for junior and senior pupil groups.

Two stimulus concepts did not have a statistically different meaning for teachers and pupils for any of the twelve pupil subgroups. The two stimulus concepts for which no pupil subgroup differed significantly from the teacher group were "cooperation" and "Future Farmers of America." At least one pupil group out of the twelve was significantly different from the teacher group in the meaning placed on the other nine stimulus concepts.

The Results of Tests of Hypothesis Three

The purpose of hypothesis three was to determine whether or not teachers predicted equally well the meaning different subgroups of their pupils placed on the stimulus concepts, noun and noun phrases, studied. The subgroups involved were twelve classifications of pupils consisting of three socio-economic levels of pupils in each of four secondary school grades.

Null Hypothesis Three

The null hypothesis was that the predictions of connotative meaning for the stimulus concepts made by teachers for their pupils will be equally accurate for each of the twelve subgroups of pupils.

In hypotheses one and two the numerical values assigned to the positions checked on the bipolar adjectives scales were the units analyzed. The units of data analyzed for hypothesis three were the sums of discrepancies between the scale values checked by the pupils and that predicted for them by their teachers for each of the eleven stimulus concepts.

The two-way multivariate analysis of variance, with the eleven stimulus concepts being the variables, yielded an F-ratio of .91 for the effect associated with grade in school, an F-ratio of 1.13 for the effect associated with socio-economic level, and an F-ratio of 1.07 for the interaction. None of these F-ratios indicated a significant difference in the accuracy with which the teachers predicted connotative meaning for the pupil subgroups. See Table 3 for a presentation of the results.

TABLE 3

RESULTS OF A TWO-WAY MULTIVARIATE ANALYSIS OF VARIANCE
OF THE DISCREPANCY BETWEEN PUPIL MEANING
FOR THE STIMULUS CONCEPTS ON A SEMANTIC
DIFFERENTIAL INSTRUMENT
AND PREDICTED MEANING[a]

Source of Variation	df.	Lambda	F-ratio	Critical Ratio[b]
Secondary school grade level	33/673	.87	.91	1.49
Socio-economic level	22/436	.90	1.13	1.60
Interaction	66/1235	.73	1.07	1.30

[a] Predicted meaning for pupil groups refers to the meaning, as indicated by the location of check-marks on seven-unit scales, which teachers think their own pupils place on stimulus concepts.

[b] Critical ratios are for the .05 level of significance.

The statistical tests for this hypothesis concerned the equality in the accuracy of prediction between subgroups of pupils rather than the accuracy of the predictions. However, the mean degree of accuracy of predictions were also computed. They were measured in terms of the mean error of prediction in bipolar adjective, scale units. The mean error in prediction, when considering all predictions made, was 1.08 scale units on the seven-unit scales. This mean scale discrepancy between the check-marks as placed on the scale by the youth and those predicted by their teachers for the total group of pupils and for the subgroup of pupils is shown in Table 4.

TABLE 4

MEAN DISCREPANCY BY GRADE LEVEL AND SOCIO-ECONOMIC LEVELS IN SCALE UNITS ON A SEMANTIC DIFFERENTIAL INSTRUMENT BETWEEN SCORES INDICATING PUPIL MEANING AND SCORES INDICATING TEACHERS' PREDICTED MEANING FOR ALL PUPILS AND ALL STIMULUS CONCEPTS[a]

SECONDARY SCHOOL GRADE LEVEL	DISCREPANCY SCORES ON SCALES BY SOCIO-ECONOMIC LEVELS OF PUPILS			
	Low	Middle	High	All
9	1.16	1.06	1.12	1.11
10	1.20	1.08	1.11	1.13
11	1.11	1.06	1.06	1.08
12	1.02	1.05	.98	1.02
All	1.12	1.06	1.07	1.08

Note the decreasing mean scale discrepancy accompanying an increased grade level and an increased socio-economic level.

[a] Predicted meaning for pupil groups refers to the meaning, as indicated by the location of check-marks on seven-unit scales, which teachers think their own pupils place on the eleven stimulus concepts studied.

The discrepancies analyzed were obtained by collapsing the discrepancy on the ten scales into one discrepancy score for each pupil for each stimulus concept. The profiles for all groups of pupils for each of the eleven stimulus concepts appear in Figures 26 through 36. The relation of the profiles for the teachers to those of the pupils indicate that teachers think pupils place a lower value on the stimlus concepts than they actually do. However, this is not true for the "pleasant-unpleasant" scale for seven out of the eleven stimulus concepts.

Reliability of Data Used for Hypothesis One, Two, and Three

Interpretation of results obtained from the readministration of the semantic differential instrument was complicated by the difficulty of differentiating between unreliability, the random errors in rechecking

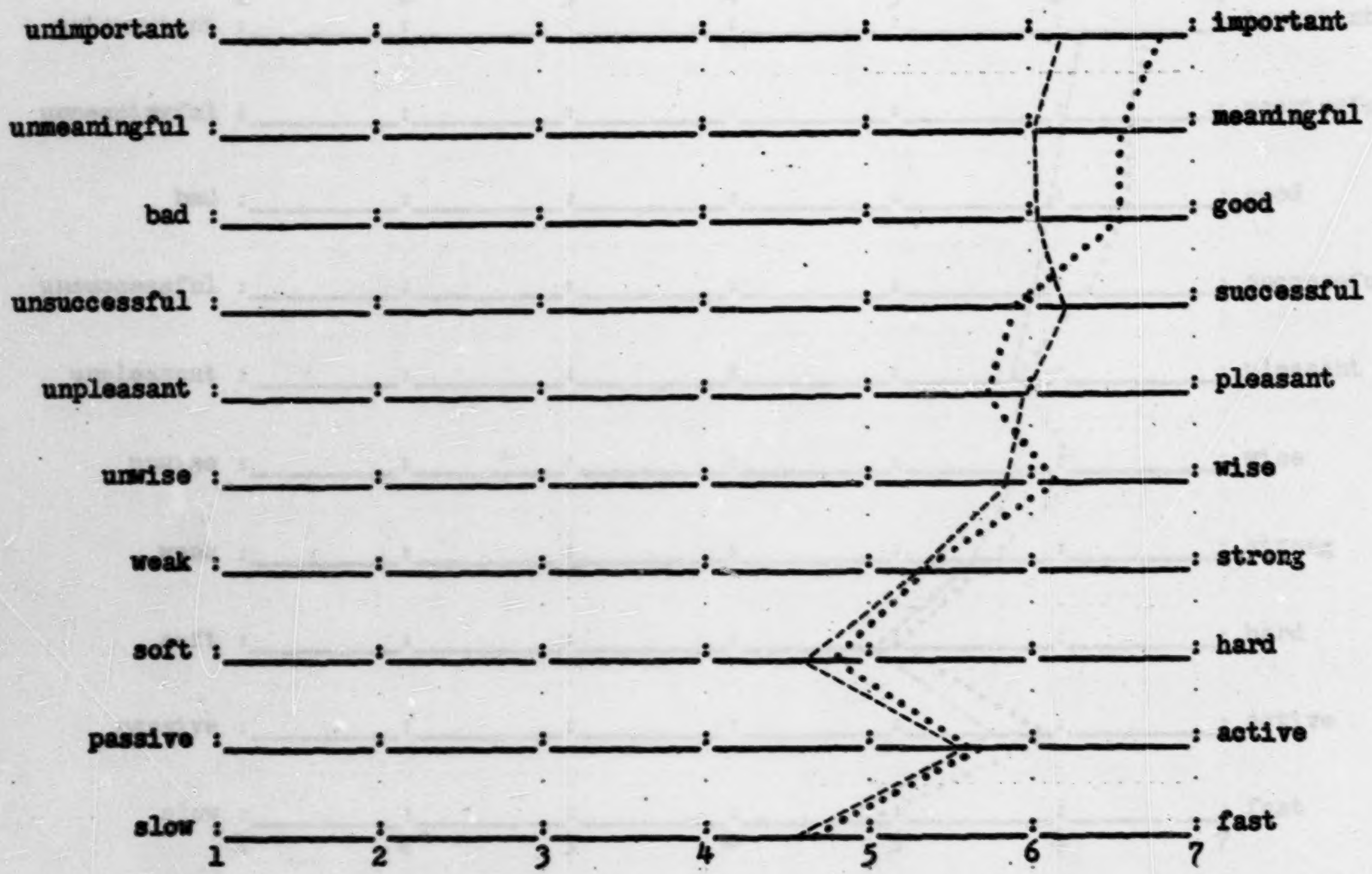


Figure 26. Profiles for connotative meaning of the stimulus concept "learning by doing", showing the scores* of all pupils and the scores* predicted for them by their teachers.

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

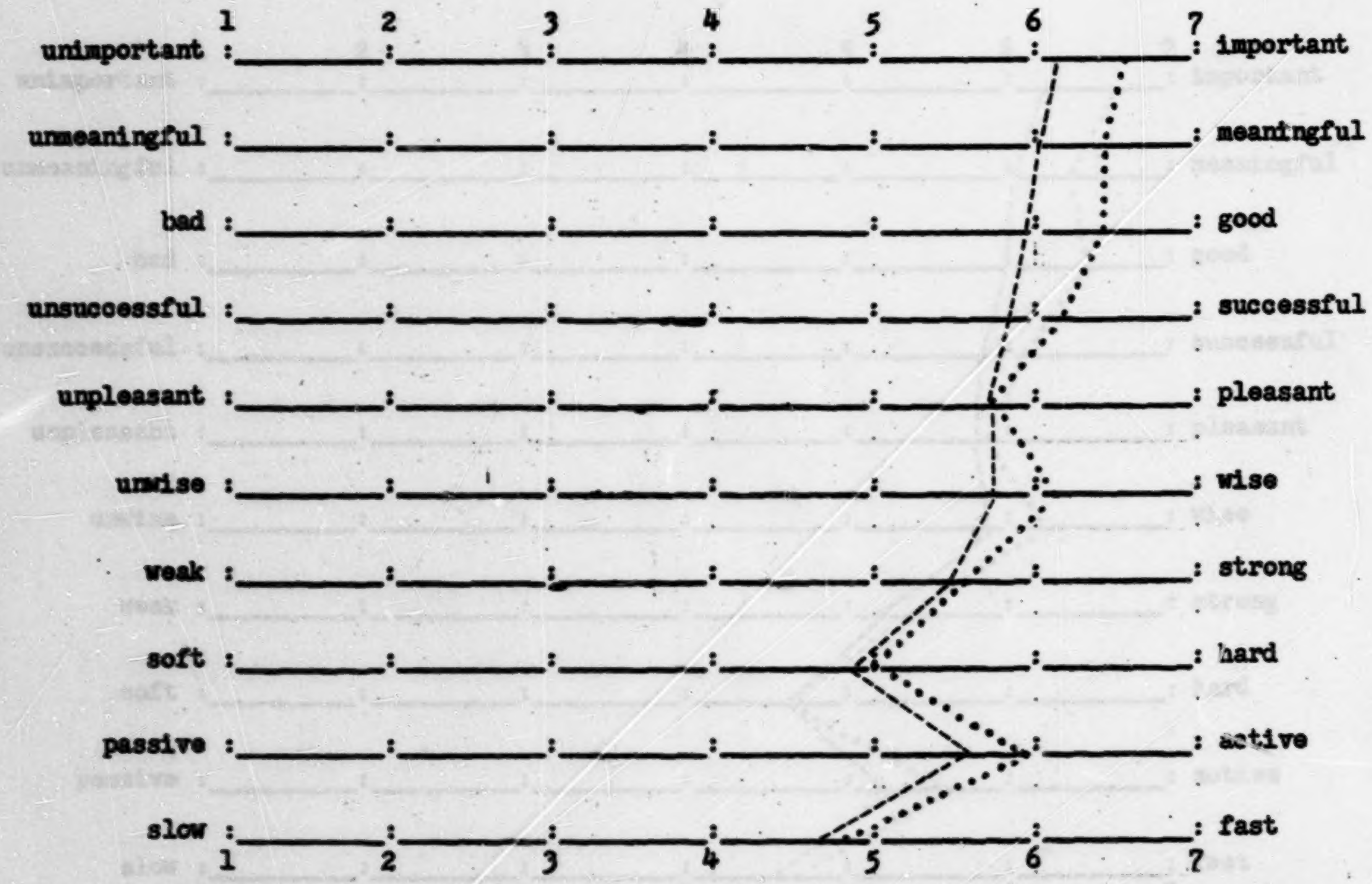


Figure 27. Profiles for connotative meaning of the stimulus concept "leadership", showing the scores* of all pupils and the scores* predicted for them by their teachers.

..... pupil group
----- teacher group

---

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the one checked by teachers.

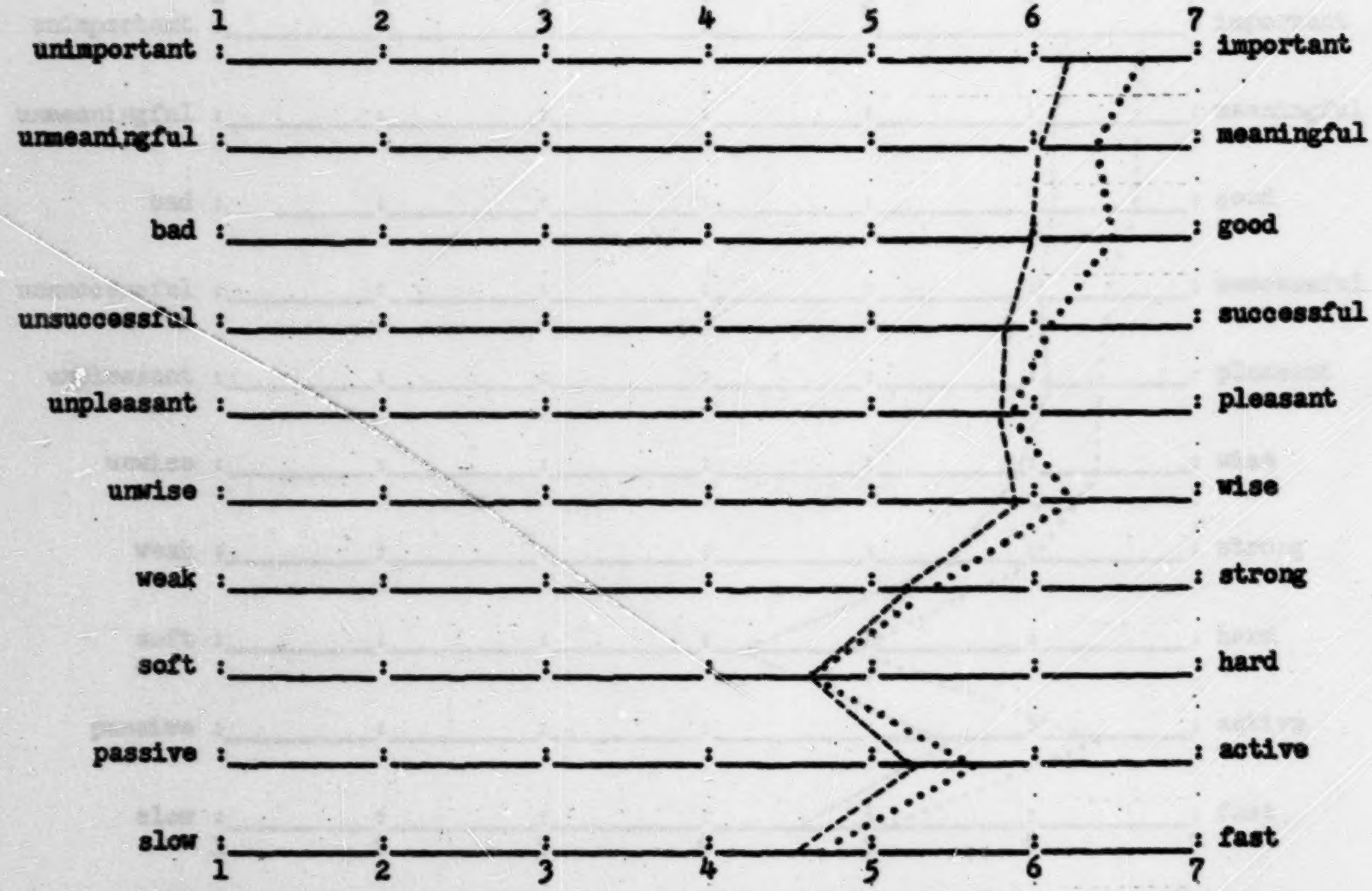


Figure 28. Profiles for connotative meaning of the stimulus concept "cooperation", showing the scores* of all pupils and the scores* predicted for them by their teachers.

..... pupil group
----- teacher group

---

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

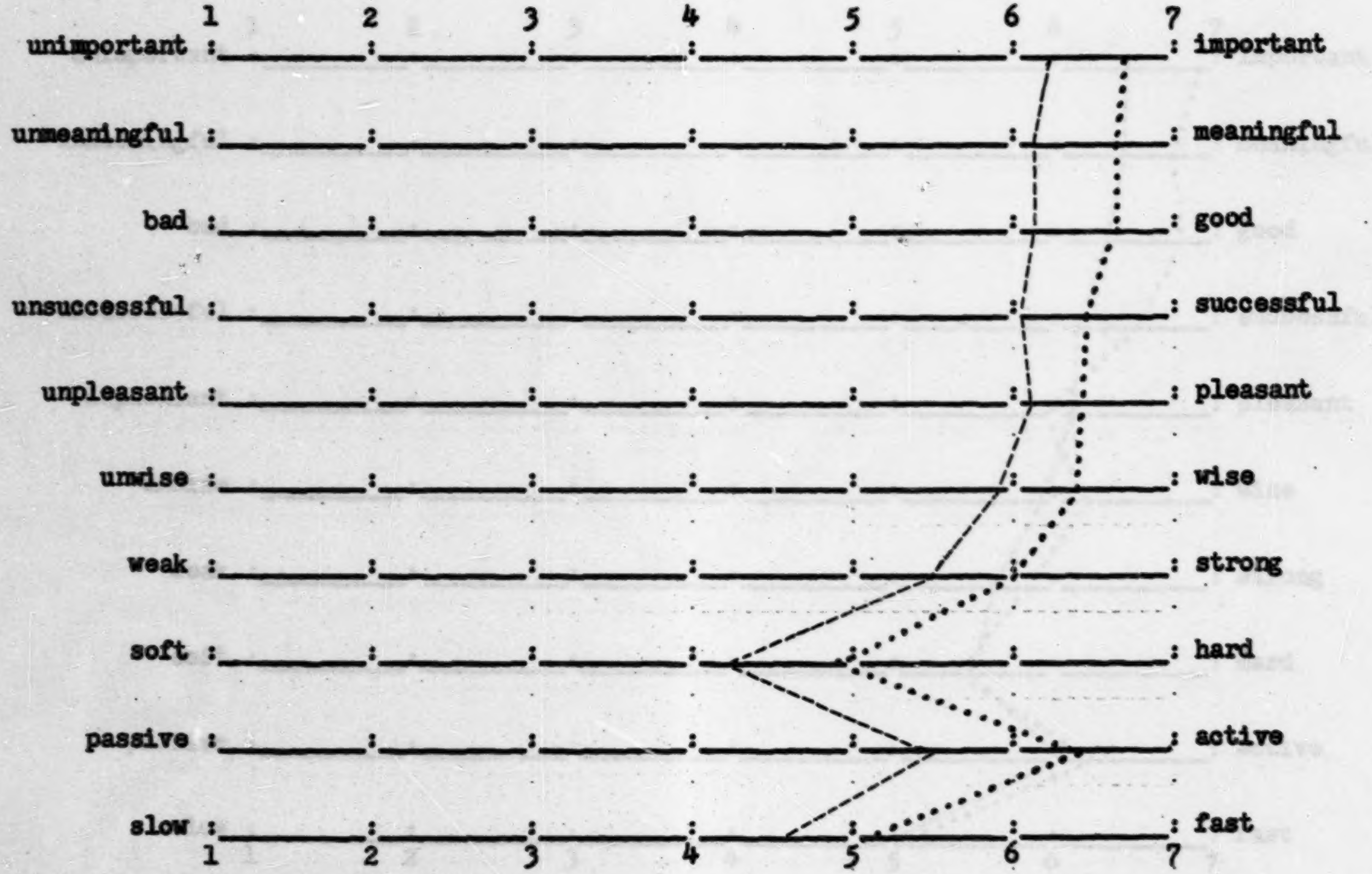


Figure 29. Profiles for connotative meaning of the stimulus concept "Future Farmers of America", showing the scores* of all pupils and the scores* predicted for them by their teachers.

---

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

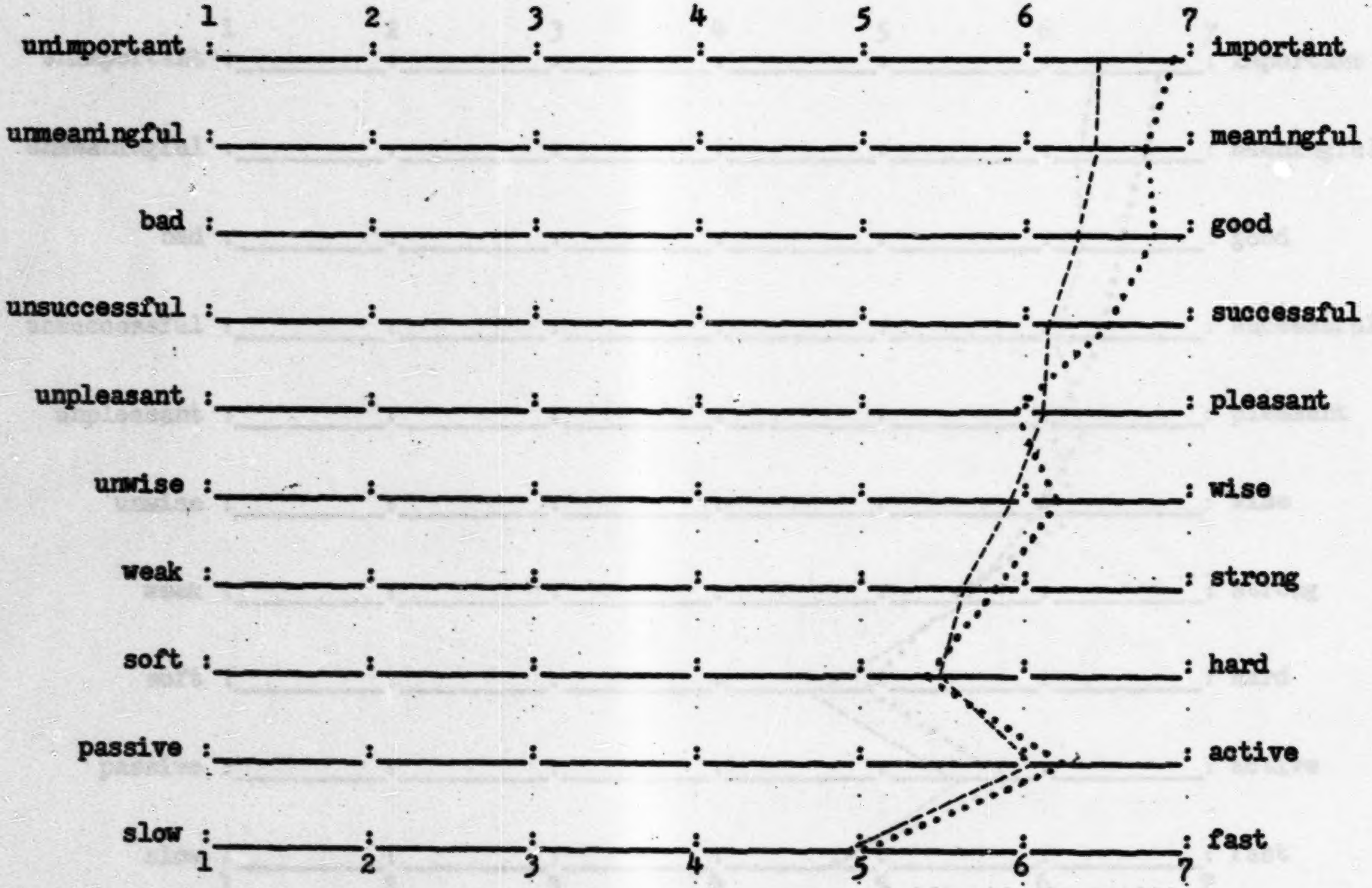


Figure 30. Profiles for connotative meaning of the stimulus concept "farming", showing the scores* of all pupils and the scores* predicted for them by their teachers.

---

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

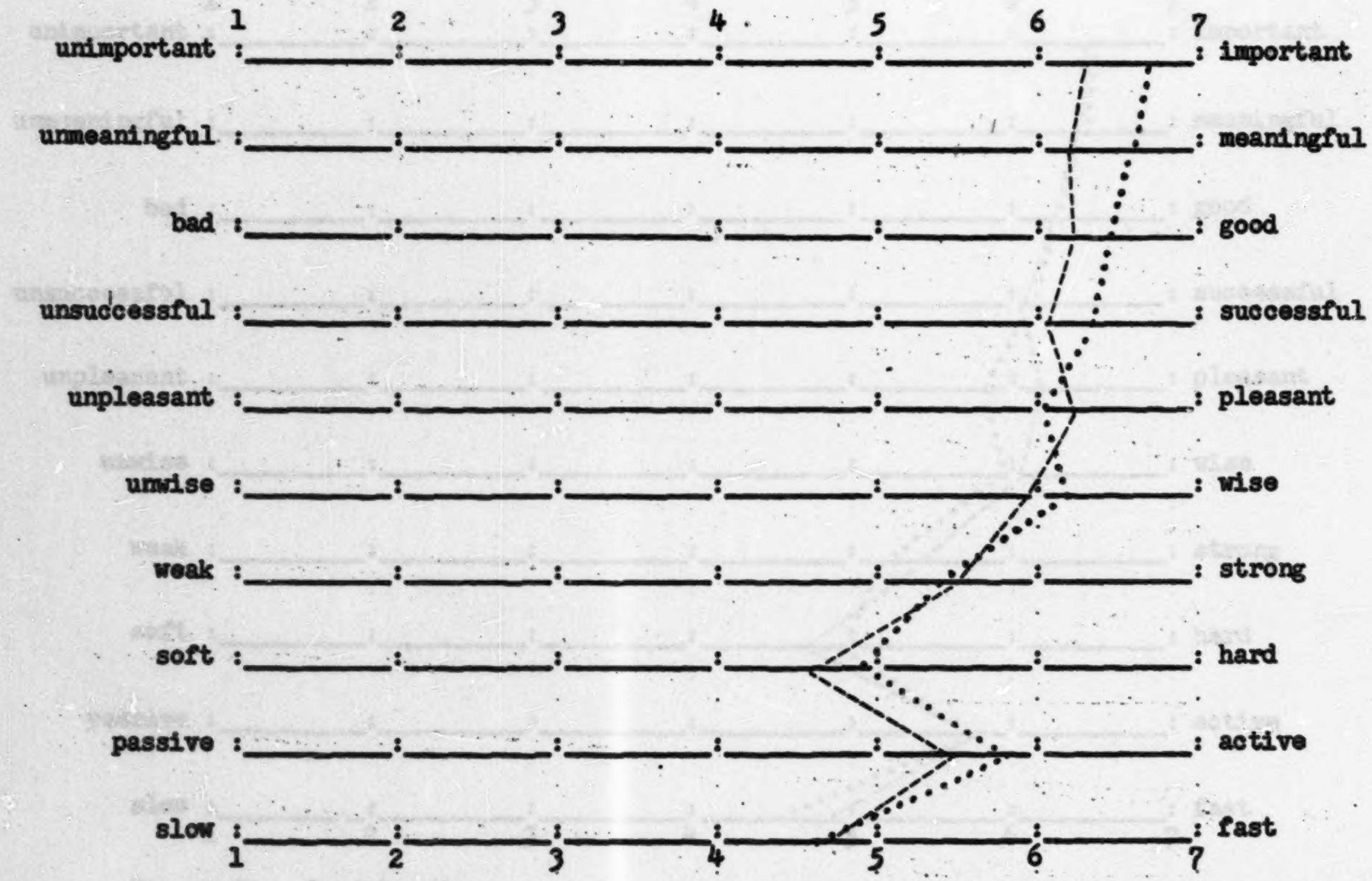


Figure 31. Profiles for connotative meaning of the stimulus concept "vocational agriculture", showing the scores* of all pupils and the scores* predicted for them by their teachers.

[*] Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

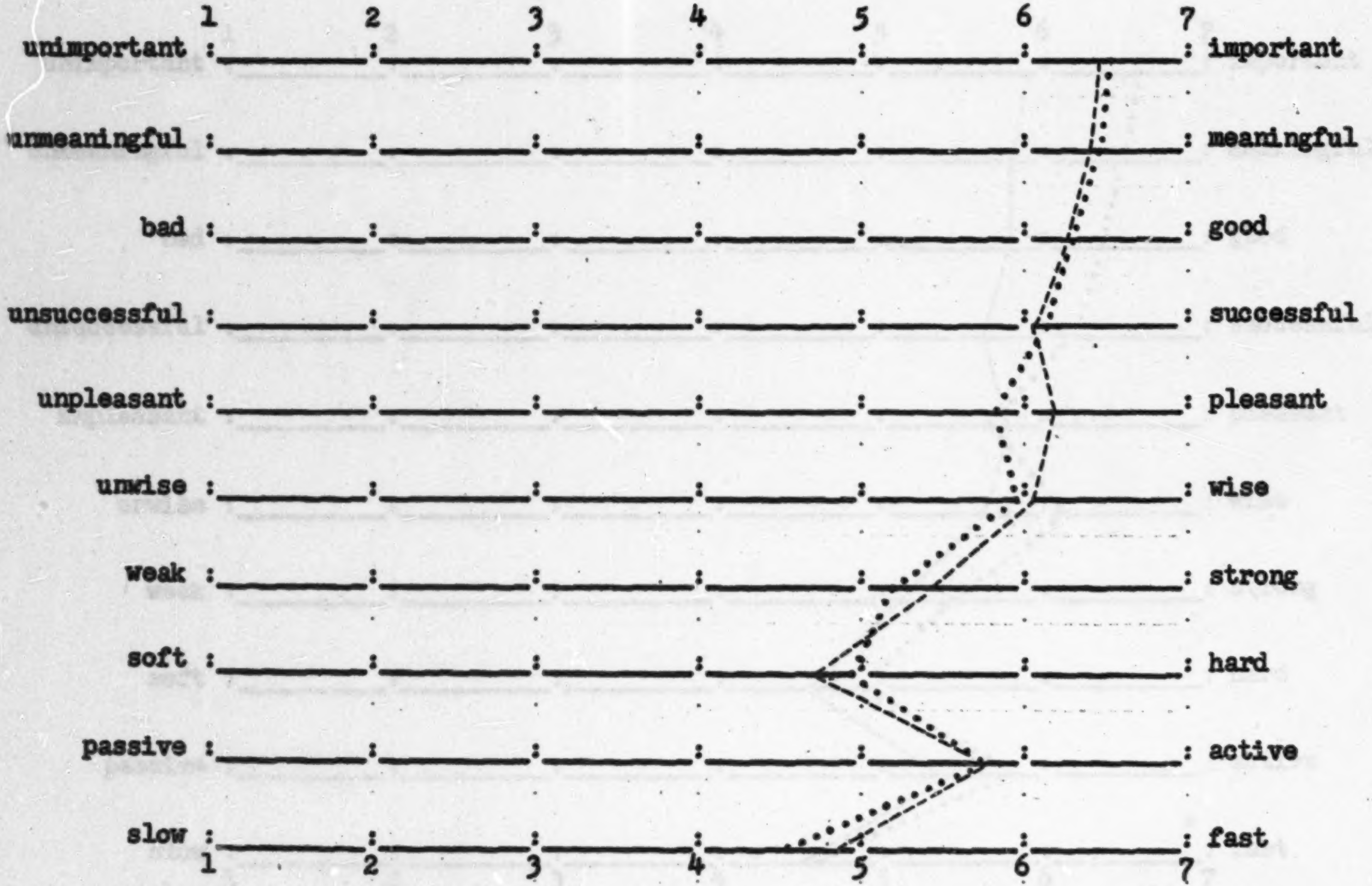


Figure 32. Profiles for connotative meaning of the stimulus concept "agricultural mechanics instruction", showing the scores* of all pupils and the scores* predicted for them by their teachers.

..... pupils group
----- teacher group

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

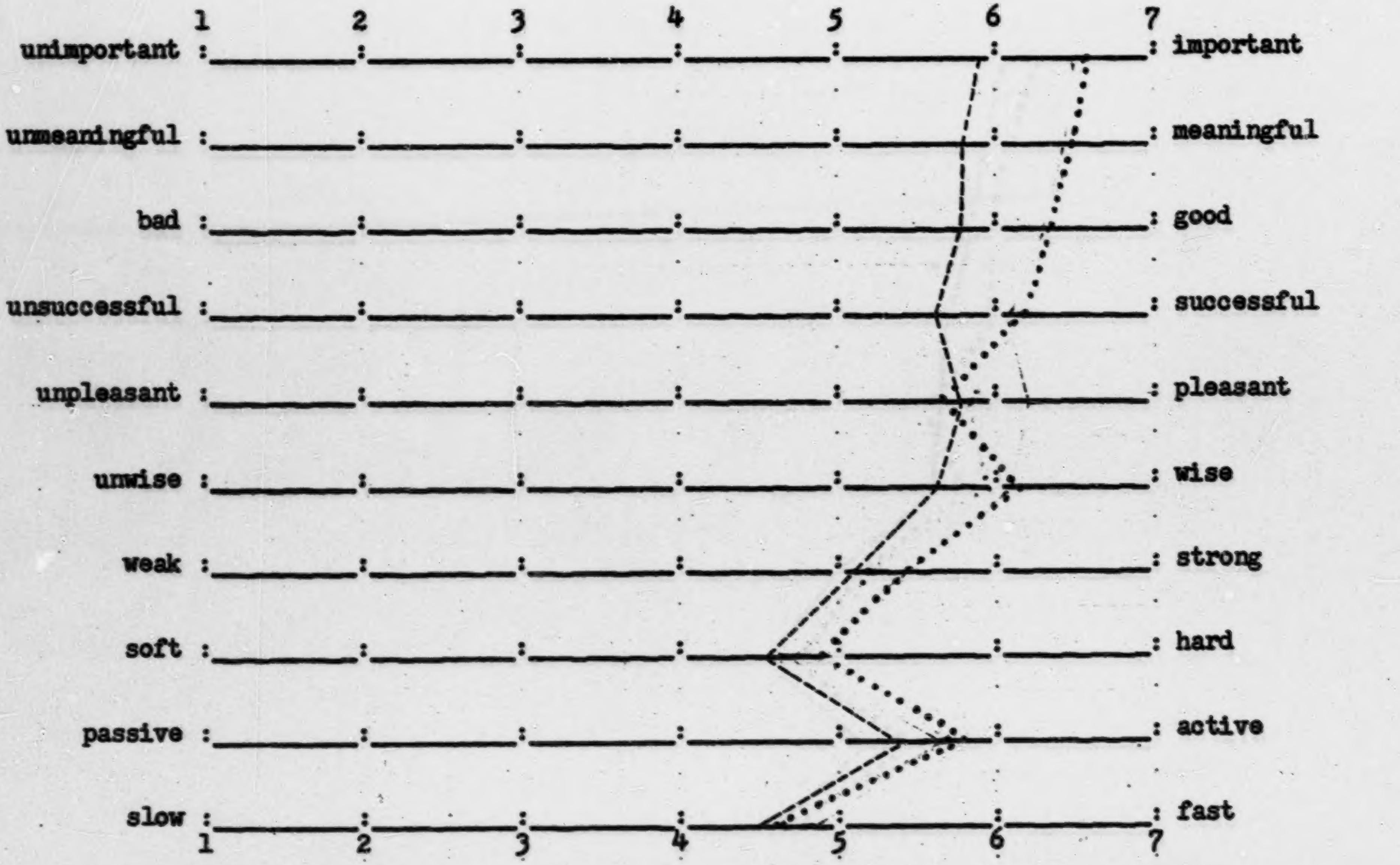


Figure 33. Profiles for connotative meaning of the stimulus concept "supervised farming program", showing the scores* of all pupils and the scores* predicted for them by their teachers.

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

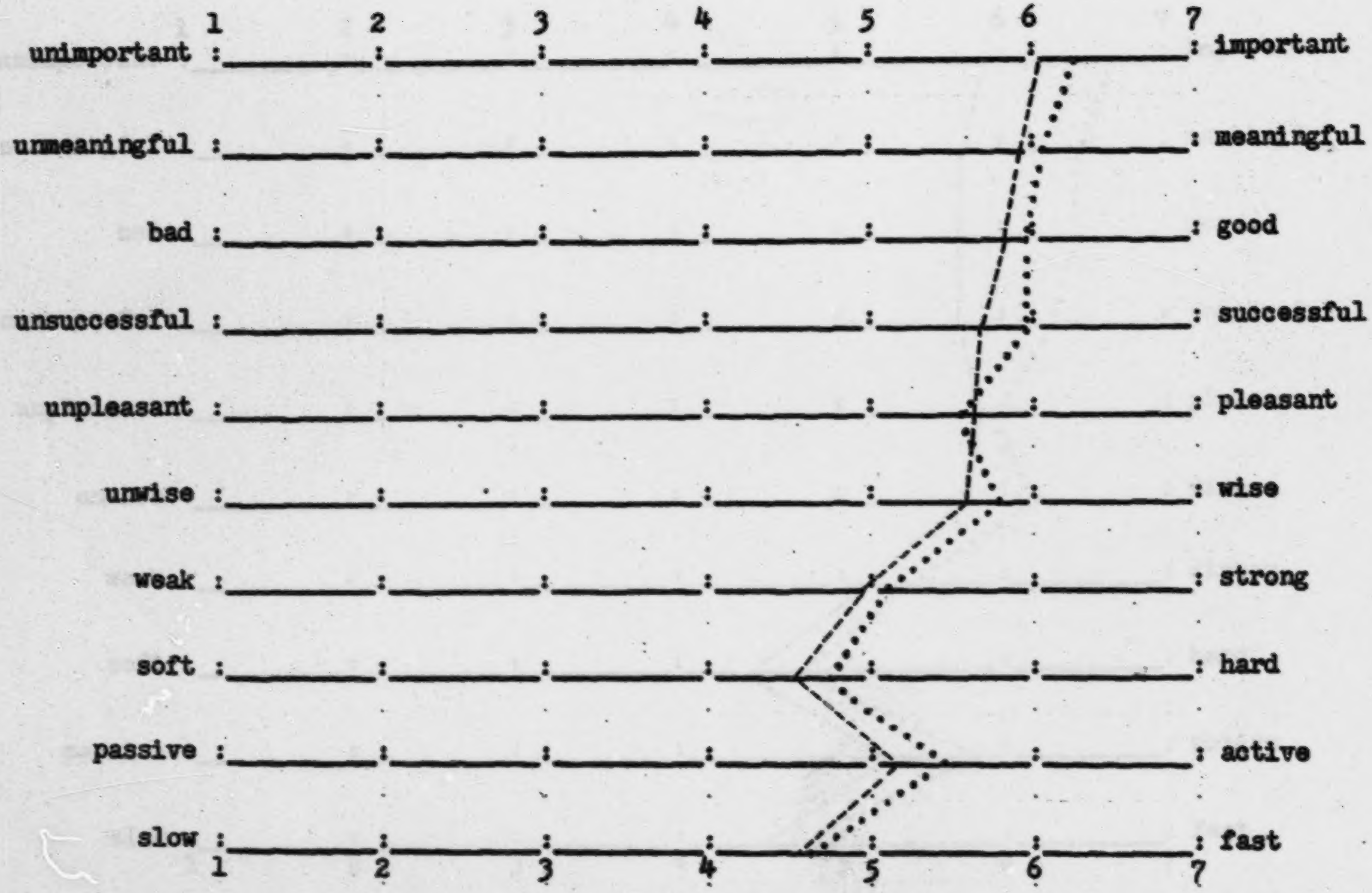


Figure 34. Profiles for connotative meaning of the stimulus concept "non-farm agricultural occupation", showing the scores* of all pupils and the scores* predicted for them by their teachers.

..... pupil group
----- teacher group

---

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

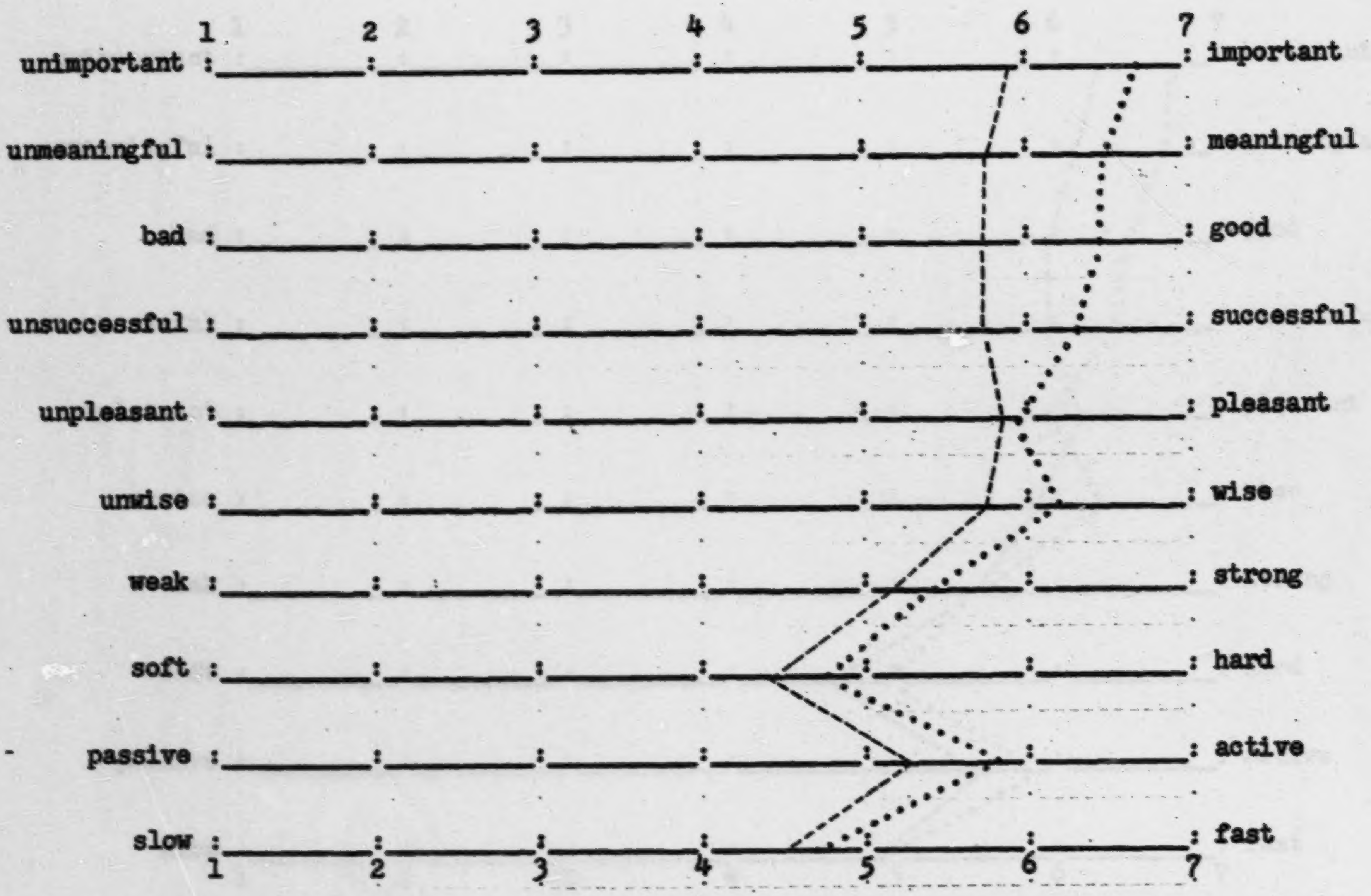


Figure 35. Profiles for connotative meaning of the stimulus concept "on-farm instruction", showing the scores* of all pupils and the scores* predicted for them by their teachers.

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

..... pupil group
----- teacher group

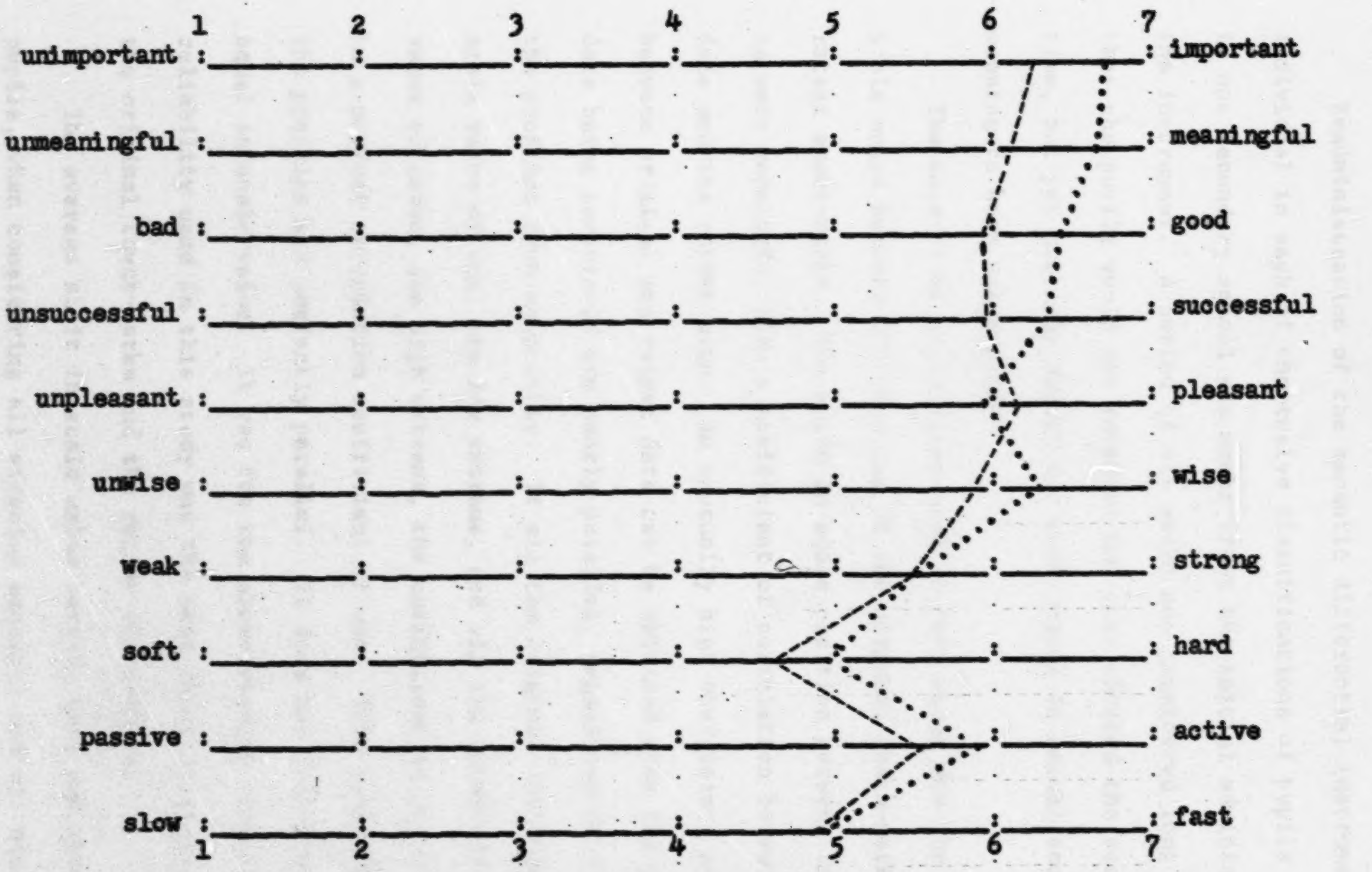


Figure 36. Profiles for connotative meaning of the stimulus concept "teacher of agriculture", showing the scores* of all pupils and the scores* predicted for them by their teachers.

*Scores refer to the scale value corresponding to the average scale position checked by pupils and to the ones checked by teachers.

the bipolar adjective scales assuming meaning is constant, and the instability of meaning which is a real change in meaning as reflected by the change of scale positions.

Readministration of the semantic differential instrument to one individual in each of the twelve classifications of pupils was performed in one secondary school six weeks after the initial administration of the instrument. A period of six weeks was considered long enough so that the pupils would not remember how they checked the scales the first time, but yet not long enough for much change in actual connotative meaning to have taken place.

The measure of reliability used in this study was the number of scale units between the position of the original check-marks and the retest check-marks. The shift in scale position between test and retest is more meaningful than a coefficient of correlation between the original data and the retest data. An unusually high coefficient of correlation between original and retest data can be obtained when the profiles of data being correlated are nearly parallel, regardless of the distance of the profiles from each other. If all the original check-marks had a scale value of one, the low extreme, and all the retest data had a scale value of seven, the high extreme, the coefficient of correlation would be a perfect correlation coefficient of one. This indicates only that the profiles are perfectly parallel. It does not indicate that they are equal in scale value. It was for the above reasons that the measure of reliability used in this study was the mean shift in scale units between the original check-marks and the retest check-marks.

The average shift in scale value between test and retest for all pupils, when considering all stimulus concepts and all scales, was .75 units on the seven-unit scales. See Table 5 for the over-all shift in

TABLE 5

MEAN SHIFT IN SCALE VALUE[a] BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR TWELVE CLASSIFICATIONS OF PUPILS FOR ALL STIMULUS CONCEPTS AND ALL SCALES

SECONDARY SCHOOL GRADE LEVEL	MEAN SHIFT IN SCALE VALUE[a] FOR SOCIO-ECONOMIC LEVELS OF PUPILS			
	Low	Middle	High	All
9	.12	.95	.43	.50
10	.95	1.08	.78	.94
11	.90	.72	.62	.75
12	.76	.70	.99	.82
All	.68	.86	.70	.75

[a] "Shift in scale value" refers to the difference in the numerical value of the position of the original check-mark on the seven-point scales of the semantic differential instrument and the numerical value of the position of the check-mark on the retest. The positions on the scales which could be checked corresponded to the whole numbers--one through seven.

scale value between test and retest, the shift in scale value between test and retest by grade in high school, and the shift in scale value between test and retest by socio-economic level. The reliability for the pupil form, the teacher form, and the prediction form of the semantic differential instrument for each stimulus concept appears in Table 6. The stimulus concept having the least reliability for pupils was "non-farm agricultural occupation." The shift in scale value between test and retest was 1.08 scale units as compared to the mean shift in scale value of .75 units for all stimulus concepts. See Table 6. The stimulus concept "teacher of agriculture" also showed a large scale shift between test and retest. The scale shift was .91 units. The large shift in scale value for the stimulus concept "non-farm agricultural occupation" was probably due to the fact that this phrase has only recently become associated with vocational agriculture. The unreliability of the

TABLE 6

MEAN SHIFT IN SCALE VALUE[a] BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR PUPIL MEANING, TEACHER MEANING, AND PREDICTIONS OF PUPIL MEANING FOR EACH STIMULUS CONCEPT

	MEAN SHIFT IN SCALE VALUE ON FORMS OF THE SEMANTIC DIFFERENTIAL INSTRUMENT		
STIMULUS CONCEPT	Pupil	Teacher	Prediction
Learning by doing	.76	.43	.83
Leadership	.68	.40	.83
Cooperation	.58	.63	.83
Future Farmers of America	.74	.43	.64
Farming	.61	.40	.84
Vocational Agriculture	.77	.28	.58
Agricultural Mechanics Instruction	.83	.40	.65
Supervised farming program	.68	.45	.78
Non-farm Agricultural occupation	1.08	.35	.73
On-farm instruction	.78	.55	.68
Teacher of Agriculture	.91	.35	.51

[a] "Shift in scale value" refers to the difference in the numerical value of the position of the original check-mark on the seven-point scales of the semantic differential instrument and the numerical value of the position of the check-mark on the retest. The positions on the scales which could be checked corresponded to the whole numbers--one through seven.

"teacher of agriculture" stimulus concept is to be expected because the pupils' feelings about their teacher vary from time to time. For example, immediately after a reprimand, the "teacher of agriculture" stimulus concept may suddenly seem less pleasant. The reliability data for the teachers also appear in Table 6. Readministration of the semantic differential instrument to both teachers and pupils indicated that the data obtained for teachers were more reliable than the data obtained for pupils.

The reliability data for each of the ten bipolar adjective scales for the pupil form, the teacher form, and the prediction form of the semantic differential instrument appear in Table 7. The least reliable data for

TABLE 7

MEAN SHIFT IN SCALE VALUE[a] BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR PUPIL MEANING, TEACHER MEANING, AND PREDICTIONS OF PUPIL MEANING FOR TEN BIPOLAR ADJECTIVES

	MEAN SHIFT IN SCALE VALUE ON FORMS OF THE SEMANTIC DIFFERENTIAL INSTRUMENT		
BIPOLAR ADJECTIVES	Pupil	Teacher	Prediction
Important-unimportant	.31	.10	.59
Meaningful-unmeaningful	.35	.27	.63
Good-bad	.66	.35	.74
Successful-unsuccessful	1.02	.29	.66
Pleasant-unpleasant	.96	.44	.73
Wise-unwise	.70	.38	.74
Strong-weak	.84	.79	.84
Hard-soft	.70	.73	.86
Active-passive	.81	.56	.64
Fast-slow	.87	.58	.70

[a] "Shift in scale value" refers to the difference in the numerical value of the position of the original check-mark on the seven-point scales of the semantic differential instrument and the numerical value of the position of the check-mark on the retest. The positions on the scales which could be checked corresponded to the whole numbers--one through seven.

pupils were obtained on the "successful-unsuccessful" and "pleasant-unpleasant" scales. The shift in scale value was 1.02 and .96 respectively, which is much higher than the mean shift in scale value of .75 scale units for the ten bipolar adjective scales. The shift in scale position of the check-marks between the first prediction of pupil meaning by teachers and the second prediction for the same pupils was .71. The mean discrepancy between scale values, as checked during the first prediction and during the second prediction, for all pupil classifications appears in Table 8.

TABLE 8

MEAN SHIFT IN SCALE VALUE[a] BETWEEN TEST AND RETEST USING THE SEMANTIC DIFFERENTIAL INSTRUMENT FOR TEACHER PREDICTIONS OF PUPIL MEANING FOR TWELVE CLASSIFICATIONS OF PUPILS

SECONDARY SCHOOL GRADE LEVEL	MEAN SHIFT IN SCALE VALUE[a] FOR SOCIO-ECONOMIC LEVELS OF PUPILS			
	Low	Middle	High	All
9	.95	.76	.83	.85
10	.83	.71	.48	.68
11	.64	1.24	.45	.77
12	.64	.60	.26	.50
All	.76	.83	.50	.71

[a] "Shift in scale value" refers to the difference in the numerical value of the position of the original check-mark on the seven-point scales of the semantic differential instrument and the numerical value of the position of the check-mark on the retest. The positions on the scales which could be checked corresponded to the whole numbers--one through seven.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Restatement of the Problem

The first purpose of the study was to determine whether or not selected words and phrases had different meanings for pupils classified by socio-economic level and grade in secondary school. The second purpose was to determine whether or not certain classifications of pupils by socio-economic level and grade were more in agreement with the teacher group studied concerning connotative meaning of words than other classifications of pupils by socio-economic level and grade. The third purpose was to determine whether or not the group of teachers studied could more accurately predict the meaning placed on words or phrases by one classification of their pupils by socio-economic level and grade than they could for their pupils in the other classifications.

Summary of Procedure Used

Pupils enrolled in a vocational education course in agriculture and their vocational agriculture teachers in twenty-one high schools constituted the population studied. These high schools were located in a contiguous geographic area having its center in Champaign County, Illinois.

Pupils were classified into three socio-economic groups by the use of the Sims SCI (Social Class Identification) Occupational Rating Scale. The researcher and the teacher of agriculture discussed each pupil's socio-economic position, as determined by the Sims instrument. The purpose of this discussion was to determine the validity of the scores obtained through the use of the Sims instrument. The aspects of the pupil's family background considered in this discussion were parental occupations, amount of family income, source of income, the style of life of the family, type of dwelling, stability of family, and size of family.

Pupils indicated the meaning they placed on eleven nouns and noun phrases of importance to vocational education in agriculture by placing check-marks on a semantic differential instrument. The words for which meaning was measured were judged against a good-bad continuum, an important-unimportant continuum and eight other bipolar, adjective scales having seven different scale values. By using an identical instrument to the one checked by pupils, the teachers of agriculture indicated what the words being studied meant to them.

The data indicating meaning of words for a sample of twenty pupils in each of twelve classifications, three socio-economic levels in each of four high school grades, were collected and analyzed. Also, data indicating what the words or phrases meant were obtained from the vocational agriculture teachers in the twenty-one cooperating schools.

Other data collected were the predictions by teachers of the meaning their pupils placed on the stimulus concepts used in the study.

Statistical Treatment

To determine whether or not a difference in meaning placed on each of eleven words or phrases frequently used in vocational agriculture existed among the pupils classified into twelve groups, a two-way multivariate analysis of variance was employed. The data analyzed were the numerical values of one through seven corresponding to the seven scale positions which pupils could check on the semantic differential instrument.

Connotative meaning of the teacher group studied was compared to that of each pupil subgroup using Hotelling's T^2.

Twenty-one teachers predicted the connotative meaning their pupils would place on the eleven stimulus concepts studied. Their predicted connotative meaning was compared with the results obtained from the twelve pupil subgroups using a two-way multivariate analysis of variance. The units of data analyzed were the sums of discrepancies between the scale value checked by the pupils and that predicted for them by their teachers for each of the eleven stimulus concepts.

Hypothesis One Conclusions

The socio-economic level of pupils was associated with the meaning placed on two of the eleven stimulus concepts studied. These two stimulus concepts were "leadership" and "cooperation." Stated differently, the analysis of data for pupils classified by grade in secondary school and socio-economic level revealed that there was a significant difference in connotative meaning among the classifications of pupils by socio-economic group for the stimulus concepts of "leadership" and "cooperation." These results indicated that a significant difference existed between at least two of the three socio-economic classifications of pupils. This finding did not necessarily mean that each of the three groups were significantly different from each other.

The Meaning of Leadership

Pupils in the lowest socio-economic group (the socio-economically disadvantaged group) placed a significantly higher value upon the word "leadership" than those pupils in the highest socio-economic group. Pupils in the middle socio-economic group did not place a significantly different meaning on the stimulus concept of "leadership" from either of the other two socio-economic groups of pupils. The profile of means of the middle socio-economic group of pupils was approximately midway between the profiles of means of the other two socio-economic groups of pupils.

The profiles of means of pupils for the stimulus concept "leadership" showed that an increasing socio-economic level was associated with a decreasing value for the stimulus concept. As the socio-economic level increases the value placed on that stimulus concept can be expected to decrease among pupils similar to the population studied.

The difference found in the meaning or value placed on the word "leadership" was expected. Offices and positions of leadership traditionally go to those of higher socio-economic status. Pupils with high socio-economic status could be expected to have their aspirations for leadership positions fulfilled; thus, they may view leadership as less valuable than those whose aspirations have been fulfilled to a lesser extent.

The Meaning of Cooperation

Profiles of means revealed that generally the value placed on the word "cooperation" increased as the socio-economic level of the pupils studied decreased. Only a slight difference in the profile of means existed between the two groups of pupils at the lowest socio-economic levels. The significant difference was between the middle and the highest socio-economic groups. This study revealed that groups of pupils at the higher socio-economic levels placed less value on cooperation than did pupils at the middle and lower socio-economic levels. This conclusion was based upon a study of rural pupils. Had the study been conducted in mid-city schools, the pupils in the lower socio-economic strata may have placed less instead of more value on cooperation.

The secondary school grade level of pupils studying vocational agriculture was not related to the meaning placed on any of the eleven stimulus concepts studied. Stated differently, no significant effect associated with grade level was found for any of the eleven stimulus concepts studied.

Hypothesis Two Conclusions

The conclusions to hypothesis two were not based upon one statistical test. The scores indicating meaning of stimulus concepts for twelve groups of pupils were compared with the scores indicating meaning of the stimulus concepts for the group of teachers studied. One statistical test was used to compare one group of pupils with the group of teachers studied for each of the eleven stimulus concepts. Thus, 132 separate statistical tests were required. The conclusions are based upon the frequency of significant differences. No conclusions were made concerning a single stimulus concept. No significant difference existed in the frequency with which the pupils by socio-economic groups were in agreement with the teacher group concerning the connotative meaning of the stimulus concepts. It therefore can be concluded that teachers do not agree more often with one socio-economic group of pupils than with another socio-economic group concerning the meaning of the eleven stimulus concepts studied.

Junior and senior pupils in the six subgroups to which they belong agreed more often with the teacher group concerning the meaning placed upon the eleven stimulus concepts studied than did the six subgroups of freshmen and sophomore pupils. Significant differences between teacher groups and pupil groups for the stimulus concepts studied appeared approximately four times more frequently among the freshman-sophomore groups than among the junior-senior groups of pupils. This finding is in agreement with that of the study made in California by Orville

Thompson (40). In his comparison of pupil and teacher values, he found that pupils in the upper secondary school grades were more in agreement with the "traditional values" which were held by the vocational agriculture teachers than the pupils in the lower secondary school grades.

Hypothesis Three Conclusions

In testing hypothesis three, one statistical test was used for the data obtained regarding all the stimulus concepts; whereas, a separate test was used for each stimulus concept in testing hypotheses one and two.

The conclusion for hypothesis three was that the teachers in the study predicted the meaning which their pupils placed on the eleven stimulus concepts studied equally well for the twelve groups of pupils classified by grade and socio-economic levels. That is, the accuracy of prediction was not significantly different among the twelve pupil classifications. This outcome does not indicate how close the predictions were, or whether or not the pupils or the teachers value the stimulus concepts more highly.

Teachers underestimated the values their pupils placed on all the stimulus concepts used in the study. This finding is not based upon statistical tests, but is based upon an inspection of the profile data. When considering all pupils studied as one group, the teachers predicted that their pupils would place less value on every stimulus concept than they actually did place on them. This general statement was untrue in a few instances for individual bipolar scales on the semantic differential instrument. Teachers overestimated how pleasant the stimulus concepts were to the pupils for seven out of eleven concepts. The pupils marked a lower value on the scale for the "pleasant-unpleasant" continuum than for any of the other five bipolar scales representing the evaluative dimension of meaning. The teachers predicted that their pupils would mark a value on the scale for the "pleasant-unpleasant" continuum about equal to that marked for the other five evaluative scales.

Even though statistical tests showed no significant differences in the accuracy of the teachers' predictions for the twelve pupil subgroups, the most accurate predictions of connotative meaning of stimulus concepts were made by the teachers for the pupils in their classes who were in the highest secondary school grade and also in the higher socio-economic levels. Very few exceptions to this conclusion were found.

Summary of Conclusions

Conclusions Based Upon Statistical Tests

1. The socio-economic level of pupils was related to the meaning vocational agriculture pupils placed on two of the stimulus concepts studied. These stimulus concepts were
    a. leadership
    b. cooperation
2. The secondary school grade level of pupils was not related to the meaning vocational agriculture pupils placed on the following stimulus concepts: (a) learning by doing, (b) leadership, (c) cooperation, (d) Future Farmers of America, (e) farming, (f) vocational agriculture, (g) agricultural mechanics instruction, (h) supervised farming program, (i) non-farm agricultural occupations, (j) on-farm instruction, and (k) teacher of agriculture.
3. Pupils in the lowest socio-economic group, the socio-economically disadvantaged group, placed a higher value upon the word "leadership" than did the highest socio-economic group.

4. Pupils in the middle socio-economic group placed a higher value upon the word "cooperation" than did the highest socio-economic group.
5. The socio-economic level of pupils was not related to the meaning vocational agriculture pupils placed on nine of the stimulus concepts studied. These stimulus concepts were: (a) learning by doing, (b) Future Farmers of America, (c) farming, (d) vocational agriculture, (e) agricultural mechanics instruction, (f) supervised farming program, (g) non-farm agricultural occupation, (h) on-farm instruction, and (i) teacher of agriculture.
6. Teachers of agriculture predicted the meaning which their pupils placed on the eleven stimulus concepts studied equally well for pupils in the four secondary school grades.
7. Teachers of agriculture predicted the meaning which their pupils placed on the eleven stimulus concepts studied equally well for pupils in the three socio-economic classifications.
8. Teachers of agriculture were more in agreement with the meaning junior and senior vocational agriculture pupils placed on the stimulus concepts studied than they were with the meaning freshmen and sophomore pupils placed on the same stimulus concepts.

Other Conclusions

1. Teachers consistently underestimated the value all vocational agriculture pupils as a group placed upon the stimulus concepts studied.
2. Although teachers of agriculture predicted the meaning their pupils placed on the stimulus concepts, in all subgroups

classifications, equally well, the predictions were not accurate predictions. An inspection of the differences in means and standard deviations made an inferential statistical test unnecessary.

3. Classifications of pupils by ways other than socio-economic level and high school grade may be more helpful than the classifications used in this study in predicting the feelings, attitudes, thoughts, and other psychological reactions by pupils to stimulus concepts.

Recommendations

Any generalizations from the findings of this study must be limited to the type of population used for the study. Where such conditions prevail, the following recommendations seem feasible.

1. Low status pupils (the socio-economically disadvantaged) value leadership more highly than do high status pupils and should be afforded an opportunity to assume positions of leadership. Teachers of vocational agriculture should attempt to influence the present leaders of the FFA organization to permit and encourage pupils having low socio-economic status to assume positions of leadership as regular officers or as chairmen of important committees in the FFA. Suggested committees are the entertainment committee and the banquet committee where opportunities for social improvement and recognition exist.

   The teacher should encourage the use of nominating committees for the selection of new officers in the FFA organization, and he should encourage the nominating committee to select candidates from the low socio-economic groups as well as from the upper socio-economic groups. Attempts should be made to prevent every office in the FFA from being filled by a clique of pupils from the higher status families. The importance of willingness of pupils and the ability of pupils to perform duties required in a position of leadership should be explained by teachers to the present leaders of the FFA organization. If possible, social barriers or lack of popularity on the part of disadvantaged pupils should not be permitted to be insurmountable obstacles to attaining positions of leadership.

2. Teachers of agriculture should be cognizant of the finding that pupils with low socio-economic status value cooperation more highly than pupils with higher socio-economic status. Teachers of agriculture need to realize that the literature pertaining to the attitudes and values of low status pupils in the cities and elsewhere do not necessarily apply to the pupils in rural areas and to pupils in other areas similar to the area studied. If disadvantaged youth were all hostile and rebellious, one would expect the low status group of pupils to place little value on "cooperation." The lowest socio-economic group and the middle socio-economic group both placed a higher value upon the word "cooperation" than did the highest socio-economic group. One reason for the relatively low value placed on the word "cooperation" by the highest socio-economic group could be the sense of self-sufficiency of those having the higher socio-economic status. The findings seem to imply that the highest socio-economic group of pupils should be taught to value cooperation more than they value it now.

3. Teachers of agriculture should be cognizant of the finding that the nouns and noun phrases of importance to vocational agriculture that were studied were valued more highly by the total group of pupils studied than expected by teachers.
4. The study of the connotative meaning of words by the use of the semantic differential technique is recommended for use in further studies. It is superior to an attitude scale in that it measures more than the evaluative dimension of meaning. Although differences in connotative meaning can be measured by this technique, these differences in the dimensions of meaning other than the evaluative dimension are difficult to interpret.

Limitations of the Study

The study was confined to one geographic area of the State of Illinois and any generalizations of the findings beyond this area must be made with caution. Confinement of the study to one geographic area was necessary in order to hold local influence on word meaning as constant as possible.

The depressed people in the area studied were less depressed than those in other locations in the state. Socio-economic inequalities were considerable in the rich farming area where the study was conducted, but perhaps not adequate for the purposes of the study. The high socio-economic group of pupils contained many sons of farm owner-operators; the low socio-economic group of pupils contained many sons of farm hands and sons of renters of farms. Perhaps the study should have been conducted in a location where unemployment was more prevalent and living conditions more depressed.

Suggestions for Further Research

The pupils studied were from rural backgrounds and from one geographic area. Similar research should be conducted to ascertain whether or not similar results would be obtained in other rural areas and in urban areas. A specific suggestion for further research is to duplicate this study using pupils having an inner-city background.

BIBLIOGRAPHY

1. Anderson, T. W. *Introduction to Multivariate Statistical Analysis.* New York: John Wiley and Sons, 1958.

2. Barber, Bernard. *Social Stratification.* New York: Harcourt Brace and Company, 1957.

3. Bendix, Reinhard and Seymour M. Lipset. *Class, Status and Power.* Glencoe: The Free Press, 1953.

4. Bopp, Joan. A Quantitative Semantic Analysis of Word Association in Schizophrenia. Unpublished doctoral dissertation, University of Illinois, 1955.

5. Bernstein, B. "Language and Social Class," *British Journal of Sociology*, 11:271-276, September, 1960.

6. Chapin, F. Stuart. *The Measurement of Social Status by the Social Status Scale.* Minneapolis, Minnesota: University of Minnesota Press, 1933, pp. 2-16.

7. Cronbach, Lee J. and Goldine C. Gleser. "Assessing Similarity Between Profiles," *Psychological Bulletin*, 50:456-473, November, 1953.

8. Fishbein, Martin and Bertram H. Raven. "The A. B. Scales: An Operational Definition of Belief and Attitude," *Human Relations*, 15:35-44, February, 1962.

9. Fredrickson, Carl. *Two-Way Analysis of Variance--A FORTRAN II Program for the University of Illinois 1604 Computer.* Urbana, Illinois: Training Research Laboratory, Bureau of Educational Research, July, 1965.

10. Getzels, J. W. "Changing Values Challenge the Schools," *School Review*, 65:92-102, Spring, 1957.

11. Havighurst, R. J. "Who Are the Socially Disadvantaged?," *Journal of Negro Education*, 33:210-217, Summer, 1964.

12. Hieronymus, A. N. "A Study of Social Class Motivation: Relationships Between Anxiety for Education and Certain Socio-Economic and Intellectual Variables," *Journal of Educational Psychology*, 42:193-205, April, 1951.

13. Hollingshead, A. B. *Elmtown's Youth.* New York: John Wiley, 1949.

14. Jenkins, J. J., W. A. Russell, and G. J. Suci. "An Atlas of Semantic Profiles for 360 Words," *American Journal of Psychology*, 71:688-699, December, 1958.

15. Jones, Lyle V. Some Illustrations of Psychological Experiments Designed for Multivariate Statistical Analysis. *Reports from the University of North Carolina Psychometric Laboratory*, 28, 1960.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Anderson, T. W. Introduction to Multivariate Statistical Analysis. New York: John Wiley and Sons, 1958.

2. Barber, Bernard. Social Stratification. New York: Harcourt Brace and Company, 1957.

3. Bendix, Reinhard and Seymour M. Lipest. Class, Status and Power. Glencoe: The Free Press, 1953.

4. Bopp, Joan. A Quantitative Semantic Analysis of Word Association in Schizophrenia. Unpublished doctoral dissertation, University of Illinois, 1955.

5. Bernstein, B. "Language and Social Class," British Journal of Sociology, 11:171-276, September, 1960.

6. Chapin, F. Stuart. The Measurement of Social Status by the Social Status Scale. Minneapolis, Minnesota: University of Minnesota Press, 1933, pp. 2-16.

7. Cronbach, Lee J. and Goldine C. Glesser. "Assessing Similarity Between Profiles," Psychological Bulletin, 50:456-473, November, 1953.

8. Fishbein, Martin and Bertram H. Raven. "The A. B. Scales: An Operational Definition of Belief and Attitude," Human Relations, 15:35-44, February, 1962.

9. Fredrikson, Carl. Two-Way Analysis of Variance--A Fortran II Program for the University of Illinois 7094 Computer. Urbana, Illinois: Training Research Laboratory, Bureau of Educational Research, July, 1965.

10. Getzels, J. W. "Changing Values Challenge the Schools," School Review, 65:92-102, Spring, 1957.

11. Havighurst, R. L. "Who Are the Socially Disadvantaged?," Journal of Negro Education, 33:210-217, Summer, 1964.

12. Hieronymus, A. N. "A Study of Social Class Motivation: Relationships Between Anxiety for Education and Certain Socio-Economic and Intellectual Variables," Journal of Educational Psychology, 42:193-205, April, 1951.

13. Hollingshead, A. B. Elmtown's Youth. New York: John Wiley, 1949.

14. Jenkins, J. J., W. A. Russel, and C. J. Suci. "An Atlas of Semantic Profiles for 360 Words," American Journal of Psychology, 71:688-699, December, 1958.

15. Jones, Lyle V. Some Illustrations of Psychological Experiments Designed for Multivariate Statistical Analysis. Reports from the University of North Carolina Psychometric Laboratory, 28, 1960.

16. Kendall, M. G. A Course in Multivariate Analysis. London: Charles Griffin and Company, 1961.

17. Maclay, Howard and Edward E. Ware. "Cross-Cultural Use of the Semantic Differential," Behavioral Science, 6:185-190, July, 1961.

18. Maltz, Howard E. "Ontogentic Change in the Meaning of Concepts as Measured by the Semantic Differential," Child Development, 34:667-674, September, 1963.

19. Manis, Melvin. "Assessing Communication with the Semantic Differential," American Journal of Psychology, 72:111-113, March, 1959.

20. Michon, J. A. "An Application of Osgood's 'Semantic Differential' Technique," Acta Psychologica, 17:377-391, No. 5, 1960.

21. Miron, Murry S. "The Influence of Instruction Modification Upon Test-Retest Reliabilities of the Semantic Differential," Educational and Psychological Measurement, 21:883-893, Winter, 1961.

22. Nobel, C. E. "Analysis of Meaning," Psychological Review, 59:421-430, November, 1952.

23. Nunnaly, J. "The Analysis of Profile Data," Psychological Bulletin, 59:311-319, July, 1962.

24. Ogden, C. K. and I. A. Richards. The Meaning of Meaning. New York: Harcourt, Brace and Company, 1959.

25. Osgood, Charles E. "An Exploration into Semantic Space," In The Science of Human Communication, ed. Schramm, Wilbur. New York: Basic Books, 1963, pp. 28-40.

26. Osgood, C. E. "The Nature and Measurement of Meaning," Psychological Bulletin, 49:197-237, May, 1952.

27. Osgood, C. E., G. J. Suci, and P. H. Tannembaum. The Measurement of Meaning. Urbana: University of Illinois Press, 1957.

28. Osgood, C. E. and G. J. Suci. "Measurement of Relation Determined by Both Mean Difference and Profile Information," Psychological Bulletin, 49:251-262, May, 1952.

29. Osgood, Charles E. Studies on the Generalities of Effective Meaning Systems. Institute of Communications Research, Urbana, Illinois, 1961.

30. Prince, R. A Study of the Relationship Between Individual Values and Administrative Effectiveness in the School Situation. Unpublished doctoral dissertation, University of Chicago, December, 1957.

31. Rachel, Frank Miller. A Semantic Differential Study of Personnel Policy Meanings at Different Levels and Functions Within an Industrial Organization. Unpublished doctoral dissertation, University of Illinois, 1962.

32. Rao, C. R. Advanced Statistical Methods in Biometric Research. New York: John Wiley, 1952.

33. Reissman, Frank. The Culturally Deprived Child. New York: Harper and Row, 1962, pp. 37-48.

34. Reissman, Frank. Workers Attitudes Toward Participation and Leadership. Unpublished doctoral dissertation, Columbia University, 1955.

35. Rowan, Thomas Churchill. Some Developments in Multidimensional Scaling Applied to Semantic Relationships. Unpublished doctoral dissertation, University of Illinois, 1954.

36. Rulon, P. J. and W. D. Brooks. On Statistical Tests of Group Differences. Cambridge: Educational Research Corporation, 1961, pp. 11 and 12.

37. Sewell, William H. "The Construction and Standardization of a Scale for Measurement of Socio-Economic Status of Oklahoma Farm Families," Oklahoma Agricultural Experiment Station, Technical Bulletin 9, Stillwater, Oklahoma, 1940.

38. Siller, Jerome. "Socio-Economic Status and Conceptual Thinking," Journal of Abnormal Social Psychology, 55:365-371, November, 1957.

39. Siller, J. The Effect of Differential Socio-Economic Status Upon the Development of Conceptual Ability. Unpublished doctoral dissertation, New York University, 1956.

40. Thompson, O. E. "Personal Values of Vocational Agriculture Students and their Teachers," Agricultural Education Magazine, 36:234-235, April, 1964.

41. Tucker, Jane and Paul Hertzberg. "Multiple Discriminant Analysis," Manual of Computer Programs for Statistical Analysis, Statistical Service Unit, University of Illinois, Urbana, 1965.

42. Ware, Edward E. Relationship of Intelligence and Sex to Diversity of the Individual Semantic Meaning Space. Unpublished doctoral dissertation, University of Illinois, 1958.

43. Warner, W. L., M. Meeker, and K. Eells. Social Class in America. Chicago: Science Research, 1949.

44. Winer, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill, 1962, pp. 632-635.

APPENDIX A

DIRECTIONS USED IN ADMINISTERING THE SIMS SCI OCCUPATIONAL RATING SCALE

DIRECTIONS USED IN ADMINISTERING THE SIMS SCI OCCUPATIONAL RATING SCALE

Before I ask you to complete my survey form, I want you to fill out a short form for one of our staff members who is concerned with occupational guidance. He believes that young people avoid certain occupations because they have a false notion of the importance of the occupation in the eyes of others.

Most of us are aware of the fact that some occupations are more desirable than others. The people who follow some occupations are generally accepted as having great prestige, honor, and status--big shots if you please, while those following other occupations have a more lowly place.

PASS OUT THE SHEETS

On the sheet you have just received you are asked to indicate how you rank the people who follow the occupations listed.

Now follow along as I read the directions at the top of the page. Are there any questions about how you are to fill out the Scale? You may start now.

When you have finished fill in your name and the other information called for in the spaces provided at the bottom of the page.

APPENDIX B

PUPIL FORM OF THE SEMANTIC DIFFERENTIAL INSTRUMENT

UNIVERSITY OF ILLINOIS

Department of Vocational and Technical Education
Division of Agricultural Education

INSTRUCTIONS FOR THE QUESTIONNAIRE (PUPIL FORM)

I am Martin McMillion, a member of the Agricultural Education Division staff at the University of Illinois. We are conducting a study of the meaning pupils place on certain words and groups of words used in vocational agriculture. I am interested in your opinions and impressions of these words and what these words stand for.

The results of this study will be used in teaching vocational agriculture in the future, and it is important that the information you give is a true expression of your feelings. The information you place on the survey form will not be shown to anyone. The information will be handled in confidence and reported only in summary form.

Purpose and Description. The purpose of filling out the forms is to have you tell me what a few words and phrases mean to you. There is no right or wrong answer. I am interested in what the words mean to you.

On the top of each page of the survey form which begins on page three, you will find a different word or phrase and below it a place to indicate your opinions. The word or phrase is at the top followed by ten lines where you indicate your opinions. At each end of these ten lines is a word such as unimportant - important, good - bad, etc. How close you place your mark to one of these words depends upon the degree to which that word seems to you to describe the word or phrase at the top of each page.

Example. The example which follows explains how one person gave his opinions of an agricultural term.

Agriculture project

1. unimportant:____:____:____:____:____:____:_X__:important
2. meaningful:_X__:____:____:____:____:____:____:unmeaningful
3. bad:____:____:____:____:____:_X__:____:good
4. successful:____:_X__:____:____:____:____:____:unsuccessful
5. pleasant:____:____:____:____:_X__:____:____:unpleasant
6. wise:____:____:_X__:____:____:____:____:unwise
7. strong:____:____:____:_X__:____:____:____:weak
8. hard:____:____:_X__:____:____:____:____:soft
9. active:____:____:____:_X__:____:____:____:passive
10. slow:____:____:_X__:____:____:____:____:fast

In the example above, on line one and two the check marks are in the space closest to the words at the end of the line and show that the word at the top is very important and very meaningful.

On line three and four the check marks are closer the middle of the line and show that the word at the top of the page is quite good and quite successful.

On line five and six the check marks show that the word at the top is slightly unpleasant but also slightly wise.

The mark in the center on line seven shows that the word at the top is not believed to be either strong or weak.

PLACE only 1 (one) check mark on each line, but be sure to check all lines.

PLEASE check each page in the order they are presented. PLEASE do not try to remember how you checked previous items. Each check mark should be made without considering how others were placed.

Thank you for your help.

SCHOLARSHIP

1. unimportant:____:____:____:____:____:____:____:important

2. meaningful:____:____:____:____:____:____:____:unmeaningful

3. bad:____:____:____:____:____:____:____:good

4. successful:____:____:____:____:____:____:____:unsuccessful

5. pleasant:____:____:____:____:____:____:____:unpleasant

6. wise:____:____:____:____:____:____:____:unwise

7. strong:____:____:____:____:____:____:____:weak

8. hard:____:____:____:____:____:____:____:soft

9. active:____:____:____:____:____:____:____:passive

10. slow:____:____:____:____:____:____:____:fast

LEARNING BY DOING

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

LEADERSHIP

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

COOPERATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FUTURE FARMERS OF AMERICA

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FARMING

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

VOCATIONAL AGRICULTURE

1. unimportant:____:____:____:____:____:____:____:important
2. meaningful:____:____:____:____:____:____:____:unmeaningful
3. bad:____:____:____:____:____:____:____:good
4. successful:____:____:____:____:____:____:____:unsuccessful
5. pleasant:____:____:____:____:____:____:____:unpleasant
6. wise:____:____:____:____:____:____:____:unwise
7. strong:____:____:____:____:____:____:____:weak
8. hard:____:____:____:____:____:____:____:soft
9. active:____:____:____:____:____:____:____:passive
10. slow:____:____:____:____:____:____:____:fast

AGRICULTURAL MECHANICS INSTRUCTION

1. unimportant:____:____:____:____:____:____:____:important
2. meaningful:____:____:____:____:____:____:____:unmeaningful
3. bad:____:____:____:____:____:____:____:good
4. successful:____:____:____:____:____:____:____:unsuccessful
5. pleasant:____:____:____:____:____:____:____:unpleasant
6. wise:____:____:____:____:____:____:____:unwise
7. strong:____:____:____:____:____:____:____:weak
8. hard:____:____:____:____:____:____:____:soft
9. active:____:____:____:____:____:____:____:passive
10. slow:____:____:____:____:____:____:____:fast

SUPERVISED FARMING PROGRAM

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

NON-FARM AGRICULTURAL OCCUPATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

ON-FARM INSTRUCTION

1. unimportant:____:____:____:____:____:____:____:important
2. meaningful:____:____:____:____:____:____:____:unmeaningful
3. bad:____:____:____:____:____:____:____:good
4. successful:____:____:____:____:____:____:____:unsuccessful
5. pleasant:____:____:____:____:____:____:____:unpleasant
6. wise:____:____:____:____:____:____:____:unwise
7. strong:____:____:____:____:____:____:____:weak
8. hard:____:____:____:____:____:____:____:soft
9. active:____:____:____:____:____:____:____:passive
10. slow:____:____:____:____:____:____:____:fast

TEACHER OF AGRICULTURE

1. unimportant:____:____:____:____:____:____:____:important
2. meaningful:____:____:____:____:____:____:____:unmeaningful
3. bad:____:____:____:____:____:____:____:good
4. successful;____:____:____:____:____:____:____:unsuccessful
5. pleasant:____:____:____:____:____:____:____:unpleasant
6. wise:____:____:____:____:____:____:____:unwise
7. strong:____:____:____:____:____:____:____:weak
8. hard;____:____:____:____:____:____:____:soft
9. active:____:____:____:____:____:____:____:passive
10. slow:____:____:____:____:____:____:____:fast

	Please answer the following questions:
Do not Write on This Side of Line	Use This Side Only
____ 1	
____ ____ ____ 2-4	Your Name____________________
____ 5	Grade in school 9th____ 10th____ 11th____ 12th____
____ 6	Year in vocational agriculture 1st____ 2nd____ 3rd____ 4th____ 5th____
____ ____ 7-8	Name of school____________________ ____________________
____ 9	Place of residence: Check one. on own farm____ on a farm belonging to someone else____ in the country but not on a farm____ in town____
____ 10	Years you have had your present Vo-ag teacher including this year ____ 1 yr. 2 yrs. ____ 3 yrs. ____ 4 yrs. ____ over 4 yrs. ____
1 11	
____ 12	

APPENDIX C

TEACHER FORM OF THE SEMANTIC DIFFERENTIAL INSTRUMENT

UNIVERSITY OF ILLINOIS

Department of Vocational
and Technical Education
Division of Agricultural Education

INSTRUCTIONS FOR THE QUESTIONNAIRE
(TEACHER FORM)

I am Martin McMillion, a member of the Agricultural Education Division staff at the University of Illinois. I am conducting a study in approximately twenty high school vocational agricultural departments to ascertain the similarity of meaning placed on certain words and phrases by teachers and their pupils.

You will be filling out the same form as your pupils. Rate these words according to your own feelings. Do not rate them as you think someone else would expect you to rate them. Nobody except me will see the form you complete.

Purpose and Description. The purpose of filling out the forms is to have you tell me what a few words and phrases mean to you. There is no right or wrong answer. I am interested in what the words mean to you.

On the top of each page of the survey form which begins on page three, you will find a different word or phrase and below it a place to indicate your opinions. The word or phrase is at the top followed by ten lines where you indicate your opinions. At each end of these ten lines is a word such as unimportant - important, good - bad, etc. How close you place your mark to one of these words depends upon the degree to which that word seems to you to describe the word or phrase at the top of each page.

Example. The example which follows explains how one person gave his opinions of an agricultural term.

Agriculture project

1. unimportant:_____:_____:_____:_____:_____:_____:__X__:important
2. meaningful:__X__:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:__X__:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:__X__:_____:_____:unpleasant
6. wise:_____:_____:__X__:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:__X__:_____:_____:_____:weak
8. hard:_____:_____:__X__:_____:_____:_____:_____:soft
9. active:_____:_____:_____:__X__:_____:_____:_____:passive
10. slow:_____:_____:__X__:_____:_____:_____:_____:fast

In the example above, on line one and two the check marks are in the space closest to the words at the end of the line and show that the word at the top is very important and very meaningful.

On line three and four the check marks are closer the middle of the line and show that the word at the top of the page is quite good and quite successful.

On line five and six the check marks show that the word at the top is slightly unpleasant but also slightly wise.

The mark in the center on line seven shows that the word at the top is not believed to be either strong or weak.

PLACE only 1(one) check mark on each line, but be sure to check all lines.

PLEASE check each page in the order they are presented. PLEASE do not try to remember how you checked previous items. Each check mark should be made without considering how others were placed.

Thank you for your help.

SCHOLARSHIP

1. unimportant:____:____:____:____:____:____:____:important

2. meaningful:____:____:____:____:____:____:____:unmeaningful

3. bad:____:____:____:____:____:____:____:good

4. successful:____:____:____:____:____:____:____:unsuccessful

5. pleasant:____:____:____:____:____:____:____:unpleasant

6. wise:____:____:____:____:____:____:____:unwise

7. strong:____:____:____:____:____:____:____:weak

8. hard:____:____:____:____:____:____:____:soft

9. active:____:____:____:____:____:____:____:passive

10. slow:____:____:____:____:____:____:____:fast

LEARNING BY DOING

1. unimportant:____:____:____:____:____:____:____:important

2. meaningful:____:____:____:____:____:____:____:unmeaningful

3. bad:____:____:____:____:____:____:____:good

4. successful:____:____:____:____:____:____:____:unsuccessful

5. pleasant:____:____:____:____:____:____:____:unpleasant

6. wise:____:____:____:____:____:____:____:unwise

7. strong:____:____:____:____:____:____:____:weak

8. hard:____:____:____:____:____:____:____:soft

9. active:____:____:____:____:____:____:____:passive

10. slow:____:____:____:____:____:____:____:fast

LEADERSHIP

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

COOPERATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FUTURE FARMERS OF AMERICA

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FARMING

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

VOCATIONAL AGRICULTURE

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important

2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful

3. bad:_____:_____:_____:_____:_____:_____:_____:good

4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful

5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant

6. wise:_____:_____:_____:_____:_____:_____:_____:unwise

7. strong:_____:_____:_____:_____:_____:_____:_____:weak

8. hard:_____:_____:_____:_____:_____:_____:_____:soft

9. active:_____:_____:_____:_____:_____:_____:_____:passive

10. slow:_____:_____:_____:_____:_____:_____:_____:fast

AGRICULTURAL MECHANICS INSTRUCTION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important

2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful

3. bad:_____:_____:_____:_____:_____:_____:_____:good

4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful

5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant

6. wise:_____:_____:_____:_____:_____:_____:_____:unwise

7. strong:_____:_____:_____:_____:_____:_____:_____:weak

8. hard:_____:_____:_____:_____:_____:_____:_____:soft

9. active:_____:_____:_____:_____:_____:_____:_____:passive

10. slow:_____:_____:_____:_____:_____:_____:_____:fast

SUPERVISED FARMING PROGRAM

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

NON-FARM AGRICULTURAL OCCUPATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

ON-FARM INSTRUCTION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

TEACHER OF AGRICULTURE

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

Please answer the following questions:

Do not Write on This Side of Line	Use This Side Only
____ 1	
____ ____ ____ 2-4	Your Name________________________
____ 5	Years taught Vo-Ag in this school 2 yrs. ____ 3 yrs. ____ 4 yrs. ____ over 4 yrs. ____
____ 6	
____ ____ 7-8	Name of school____________________ ________________________
____ 9	Age group: Check one 21 - 30 ____ 31 - 40 ____ 41 - 50 ____ over 50 ____
____ 10	
2 11	

APPENDIX D

PREDICTION FORM OF THE SEMANTIC DIFFERENTIAL INSTRUMENT

UNIVERSITY OF ILLINOIS

Department of Vocational
and Technical Education
Division of Agricultural Education

INSTRUCTIONS FOR THE QUESTIONNAIRE
(PREDICTION FORM)

The meaning placed on a group of words and phrases by you and your students has already been collected. I would now like to determine how well teachers can predict the meanings their pupils place upon these same words and phrases. You are asked to fill out the same survey form just as you think your pupil completed it for himself. These data will also be handled in confidence and reported only in summary form.

THE ORIGINAL INSTRUCTIONS TO THE PUPIL FOLLOW

Purpose and Description. The purpose of filling out the forms is to have you tell me what a few words and phrases mean to you. There is no right or wrong answer. I am interested in what the words mean to you.

On the top of each page of the survey form which begins on page three, you will find a different word or phrase and below it a place to indicate your opinions. The word or phrase is at the top followed by ten lines where you indicate your opinions. At each end of these ten lines is a word such as unimportant - important, good - bad, etc. How close you place your mark to one of these words depends upon the degree to which that word seems to you to describe the word or phrase at the top of each page.

Example. The example which follows explains how one person gave his opinions of an agricultural term.

Agriculture project

1. unimportant:_____:_____:_____:_____:_____:_____:__ X __:important

2. meaningful:__ X __:_____:_____:_____:_____:_____:_____:unmeaningful

3. bad:_____:_____:_____:_____:_____:_____:_____:good

4. successful:_____:__ X __:_____:_____:_____:_____:_____:unsuccessful

5. pleasant:_____:_____:_____:_____:__ X __:_____:_____:unpleasant

6. wise:_____:_____:__ X __:_____:_____:_____:_____:unwise

7. strong:_____:_____:_____:__ X __:_____:_____:_____:weak

8. hard:_____:_____:__ X __:_____:_____:_____:_____:soft

9. active:_____:_____:_____:__ X __:_____:_____:_____:passive

10. slow:_____:_____:__ X __:_____:_____:_____:_____:fast

In the example above, on line one and two the check marks are in the space closest to the words at the end of the line and show that the word at the top is very important and very meaningful.

On line three and four the check marks are closer the middle of the line and show that the word at the top of the page is quite good and quite successful.

On line five and six the check marks show that the word at the top is slightly unpleasant but also slightly wise.

The mark in the center on line seven shows that the word at the top is not believed to be either strong or weak.

PLACE only 1(one) check mark on each line, but be sure to check all lines.

PLEASE check each page in the order they are presented. PLEASE do not try to remember how you checked previous items. Each check mark should be made without considering how others were placed.

Thank you for your help.

LEARNING BY DOING

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important

2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful

3. bad:_____:_____:_____:_____:_____:_____:_____:good

4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful

5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant

6. wise:_____:_____:_____:_____:_____:_____:_____:unwise

7. strong:_____:_____:_____:_____:_____:_____:_____:weak

8. hard:_____:_____:_____:_____:_____:_____:_____:soft

9. active:_____:_____:_____:_____:_____:_____:_____:passive

10. slow:_____:_____:_____:_____:_____:_____:_____:fast

LEADERSHIP

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

COOPERATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FUTURE FARMERS OF AMERICA

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

FARMING

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

VOCATIONAL AGRICULTURE

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

AGRICULTURAL MECHANICS INSTRUCTION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

SUPERVISED FARMING PROGRAM

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

NON-FARM AGRICULTURAL OCCUPATION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

ON-FARM INSTRUCTION

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

TEACHER OF AGRICULTURE

1. unimportant:_____:_____:_____:_____:_____:_____:_____:important
2. meaningful:_____:_____:_____:_____:_____:_____:_____:unmeaningful
3. bad:_____:_____:_____:_____:_____:_____:_____:good
4. successful:_____:_____:_____:_____:_____:_____:_____:unsuccessful
5. pleasant:_____:_____:_____:_____:_____:_____:_____:unpleasant
6. wise:_____:_____:_____:_____:_____:_____:_____:unwise
7. strong:_____:_____:_____:_____:_____:_____:_____:weak
8. hard:_____:_____:_____:_____:_____:_____:_____:soft
9. active:_____:_____:_____:_____:_____:_____:_____:passive
10. slow:_____:_____:_____:_____:_____:_____:_____:fast

	Please answer the following questions:
Do not Write on This Side of Line	Use This Side Only
____ 1	
____ ____ ____ 2-4	Pupil's Name____________________________
____ 5	Pupil's grade in school 9th___ 10th___ 11th___ 12th___
____ 6	Pupil's year in vocational agriculture including this year 1st___ 2nd___ 3rd___ 4th___ 5th___
____ ____ 7-8	Name of school__________________________ __________________________
____ 9	Pupil's place of residence: Check one. on own farm____ on a farm belonging to someone else___ in the country but not on a farm___ in town___
____ 10	Years you have had this pupil in class, including this year 1 yr. _____ 2 yrs. _____ 3 yrs. _____ 4 yrs. _____ over 4 yrs. _____
3 11	

APPENDIX E

F-RATIOS OBTAINED USING HOTELLING'S T^2 TEST BETWEEN TWELVE PUPIL GROUPS AND THE TEACHER GROUP FOR EACH OF ELEVEN STIMULUS CONCEPTS

APPENDIX E

F-RATIOS OBTAINED USING HOTELLING'S T^2 TEST BETWEEN TWELVE PUPIL GROUPS AND THE TEACHER GROUP FOR EACH OF ELEVEN STIMULUS CONCEPTS

STIMULUS CONCEPT	F-RATIOS FOR HIGH SCHOOL GRADE AND SOCIO-ECONOMIC LEVELS OF PUPILS											
	FRESHMEN			SOPHOMORES			JUNIORS			SENIORS		
	Low	Middle	High	Low	Middle	High	Low	Middle	High	Low	Middle	High
Learning By Doing	1.58	3.65*	1.98	1.01	2.38*	2.74*	1.49	0.89	1.65	0.65	1.01	1.65
Leadership	2.03	1.97	1.11	1.95	2.21*	1.80	0.78	0.66	3.14*	2.62*	0.99	1.63
Cooperation	0.61	1.55	1.09	0.67	1.36	1.54	0.74	0.62	0.70	0.97	1.08	0.43
Future Farmers of America	1.63	1.22	1.41	1.36	0.61	1.79	0.93	0.85	1.81	0.77	0.87	0.72
Farming	1.03	1.61	0.97	2.56*	2.38*	0.90	1.28	0.61	0.62	0.68	1.31	1.00
Vocational Agriculture	1.01	2.28*	1.24	1.32	2.15	2.02	0.81	2.25*	2.30*	2.08	1.51	1.02
Agricultural Mechanics Instruction	0.54	1.37	0.85	0.07	2.70*	1.71	1.45	0.71	1.27	1.65	0.76	1.20
Supervised Farming Program	0.81	2.78*	1.08	1.29	1.14	1.29	1.07	1.50	1.53	0.52	1.42	1.17
Non-Farm Agricultural Occupation	2.82*	1.80	1.72	4.55*	3.41*	1.49	1.97	1.69	1.91	1.52	2.13	0.57
On-Farm Instruction	1.51	3.99*	2.25*	0.88	1.70	1.94	1.24	1.34	0.69	1.44	1.09	0.94
Teacher of Agriculture	1.33	0.82	0.80	0.57	2.05	2.93*	1.46	0.78	0.84	1.32	1.77	1.19

*$F_{05} = 2.16$

APPENDIX F

DESCRIPTION OF STATISTICAL TESTS USED IN THE STUDY

DESCRIPTION OF STATISTICAL TESTS USED IN THE STUDY

The following description of Hotelling's T^2 test and Wilks' lambda criterion were given by Professor Maurice M. Tatsuoka of the University of Illinois at the AERA Session of Experimental Design in Chicago in February of 1966.

1. Hotelling's T^2 test--a multivariate analog of the t-test for significance of difference between two group means.

Letting $\overline{X}_1$ and $\overline{X}_2$ be the row vector of dependent-variable means in the two groups; S_w the within-groups sums-of-squares-and-cross-products (SSCP) matrix; and n_1 and n_2 numbers of subjects in the two groups; the T^2-statistic is given by:

$$(n_1 + n_2)\, T^2 = n_1 n_2 (n_1 + n_2 - 2) \left[\overline{X}_1 - \overline{X}_2\right] S_w^{-1} \left[\overline{X}_1 - \overline{X}_2\right]'.$$

The quantity $[(n_1 + n_2 - p - 1) / p(n_1 + n_2 - 2)]\, T^2$

Where p (the number of dependent variables) is distributed as an F-ratio with $df_1 = p$ and $df_2 = n_1 + n_2 - 2$.

2. Wilks' Λ-test--multivariate analog of F-test for significance of difference among k (> 2) group means.

Letting S_w be the within groups SSCP matrix as before [above], and S_t the total SSCP matrix, and denoting their respective determinants by the absolute value sign, the - (for "likelihood ratio") criterion is given by

$$\Lambda = \frac{|S_w|}{|S_t|} = \left|S_t^{-1} S_w\right|$$

Note: Test 2 above for two groups is equivalent to test 1 just as the F-test for two groups is equivalent to the t-test.

APPENDIX G

LETTER TO SCHOOL ADMINISTRATORS REQUESTING PERMISSION TO CONDUCT THE STUDY IN THEIR SCHOOLS

The Agricultural Education Division at the University of Illinois is conducting a research project on differential methods of teaching pupils from various socio-economic strata. My part of this project would in the next few months, hopefully, involve the teacher of agriculture and the pupils in vocational agriculture in your school. My study is one in communications and is designed to determine the different meaning certain concepts such as "vocational agriculture," "leadership," and "cooperation" have for teachers of agriculture and for the different socio-economic strata of pupils.

The pupils in agriculture would be asked to take the Sims SCI Occupational Rating Scale which requires twenty minutes. A few weeks later a sample of the pupils and the teacher(s) would be asked to rate certain concepts on a rating scale. This would take no longer than twenty minutes.

If I may have permission to contact your vocational agriculture teacher regarding my proposed research, please indicate on the enclosed card. If the answer is favorable I will then meet with the teacher of agriculture to seek his cooperation.

Sincerely yours,

Martin B. McMillion, Instructor

MBM:tc
Enclosure

APPENDIX H

LETTER TO TEACHERS OF AGRICULTURE REQUESTING THEM TO MAKE PREDICTIONS OF MEANING PLACED UPON STIMULUS CONCEPTS BY THEIR PUPILS

UNIVERSITY OF ILLINOIS

COLLEGE OF EDUCATION

MEMORANDUM

Date December 14, 1966

To Teachers Cooperating in the Teacher and Youth Communication Research Project

From Martin McMillion

Subject Prediction of your pupils' meaning for words

I have completed gathering data at twenty-one schools and have drawn a sample for the prediction phase of the study.

I am happy to report that I will be able to pay you for your time. Payments will be three dollars plus one-half dollar per pupil for which you make a prediction.

Will you please mark the forms as you think your pupil marked them. The directions appear only on the first form. The name of the pupil appears on the back page of the form.

If you complete the forms before Tuesday, December 28, use the enclosed envelope and the postage inside it to mail the forms back. If you have not completed the forms by that date, please keep them and I will come to your school and pick them up on Tuesday January 4, 1966.

I have enclosed a personal check which will partially pay you for your assistance. Will you sign the receipt which is enclosed and place your social security number on it, so I can be reimbursed.

If you have any trouble cashing the check just hold all the materials until January 4 and I will pay you in cash at that time.